TECHNICAL INFORMATION

# WALL & CEILING CONSTRUCTIONS

United States Gypsum

**For Building • For Industry**

Gypsum • Lime • Steel • Insulation • Roofing • Paint

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UNITED STATES GYPSUM

# PERFORATED ROCKLATH*

## DESCRIPTION

Perforated ROCKLATH plaster base is a gypsum lath made in sheet form. The core, fibered gypsum, is faced on sides and longitudinal edges with paper specially manufactured for this purpose. The perforations are ¾" round holes 4" on centers.

Standard size is ⅜" x 16" x 48".

Complies with ASTM Designation C37-42 and Federal Specification SS-P-431a.

## FUNCTION AND UTILITY

*FIREPROOF*—ROCKLATH plaster base, having a gypsum core, is incombustible and will not transmit temperatures much over 212° F. until completely calcined, a slow process. For economy perforated lath is especially useful where one hour fire ratings are required. Refer to Technical Data on next page.

*RESISTANCE TO SOUND TRANSMISSION*—BMS report No. 17, published by National Bureau of Standards, assigns a sound-transmission loss rating of 41.1 db. to a wood stud partition with gypsum lath and plaster both sides. See Technical Data on next page for higher ratings.

*STRENGTH OF BOND*—Tests indicate gypsum plaster bonds to ROCKLATH with a factor of safety of 144. This unusual bonding strength, plus the "riveting" of plaster through the lath, helps account for the high fire rating of Perforated ROCKLATH and plaster.

*STRUCTURAL STRENGTH*—The large sheets add appreciable resistance to lateral distortion of the frame. When plastered to standard ⅞" grounds, the construction offers high transverse strength between framing members.

*PERFORMANCE*—Gypsum is a mineral, not affected by time, decay, dry rot, or normal humidity conditions; does not attract vermin.

*LOW IN COST*—Its low cost and outstanding performance have made perforated ROCKLATH plaster base and plaster the standard of excellence throughout the country because:

a. Material is low in cost.

b. Large units (5⅛ square feet) are quickly erected, affording low labor cost.

c. Requires approximately 20 per cent less plaster than other key-type laths.

## LIMITATIONS OF USE

1. ROCKLATH, ⅜" thick, is designed for supports not to exceed 16" on centers. For centerings greater than 16" and not more than 24", ½" thickness of ROCKLATH should be used.

2. For use with gypsum plaster only. Bond between lime or portland cement plaster and ROCKLATH is inadequate.

3. Gypsum lath and plaster, painted with 3 coats lead and oil, has a vapor permeability of about 7½ grains of water per square foot per hour per psi difference in vapor pressure. For higher resistance to vapor transmission, use Insulating ROCKLATH plaster base described on page 4.

4. ROCKLATH plaster base should not be used where exposed to excessive moisture or humidity. Use galvanized metal lath (or galvanized metal fabric), and portland cement-lime plaster.

5. Perforated ROCKLATH should not be used on ceilings with Resilient ROCKLATH Clips or similar suspensions. Use plain ROCKLATH with full scratch coat, raked and allowed to set. Follow with brown coat to total thickness of 7/16" over the lath before the application of any type of finish.

## SPECIFICATIONS

### For Nail-on Construction

**SCOPE:** Unless otherwise shown on plans, all exterior walls, all interior stud partitions and all ceilings are included. (*For clip attachment details, see pages 7, 8 and 9.*)

**MATERIALS:** *Gypsum lath* shall be (Perforated) (Plain) ROCKLATH, ⅜" thick x 16" x 48", manufactured by the United States Gypsum Company. (*For Insulating ROCKLATH, see page 4.*)

*Accessories*, including cornerite and corner bead, shall be manufactured by the United States Gypsum Company.

*Nails* shall be 1⅛" 13 gauge, blued ⅜" flat head, smooth diamond point. (For attachment to wood.)

**APPLICATION:** ROCKLATH plaster base shall be applied face out with the long dimension at right angles to the framing members with staggered vertical joints. Also stagger joints between walls and ceilings where practical so that vertical joints on wall will not meet ceiling joints. Space nails approximately 4" apart, using 5 nails per lath, per support. ROCKLATH shall not be butted tightly together at all joints, re-entrant angles shall be reinforced over the ROCKLATH with Cornerite. Cornerite shall be fastened only sufficiently to retain position during plastering. Cornerbead shall be applied to all exterior angles by nailing through to framing.

*Trademark Reg. U. S. Pat. Off.*

**"RED TOP," "BRIDJOINT," "CHESHIRE," "BONDCRETE," "PYROBAR," "ROCKLATH," "ORIENTAL," "SABINITE," "IVORY," "GRAND PRIZE," "CHAMPION," "STAR," "USG," "TRUSSTEEL," "SHEETROCK," AND "PERF-A-TAPE," are registered trademarks, "BRACE-TITE" is a trademark owned by United States Gypsum and are used by it to distinguish its products.**

**"RED TOP" identifies the particular plasters and finishes;**

**"BRIDJOINT" identifies the particular lathing system;**

**"BONDCRETE" identifies the particular plaster for concrete surfaces;**

**"PYROBAR" identifies the particular gypsum partition tile;**

**"ROCKLATH" identifies the particular gypsum lath or plaster base;**

**"ORIENTAL" identifies the particular colored finishes;**

**"SABINITE" identifies the particular acoustical plaster;**

**"IVORY," "GRAND PRIZE" and "CHESHIRE" identify the particular hydrated limes;**

**"CHAMPION" and "STAR" identify the particular white gauging plasters;**

**"TRUSSTEEL" identifies the particular truss designed stud;**

**"SHEETROCK" identifies the particular gypsum wallboard;**

**"PERF-A-TAPE" identifies the particular joint sealing tape;**

**"BRACE-TITE" identifies the particular lathing system;**

**all manufactured by United States Gypsum.**

# PLAIN ROCKLATH

## DESCRIPTION

Plain ROCKLATH plaster base is a gypsum lath made in sheet form. The core, fibered gypsum, is faced on sides and edges with paper specially manufactured for this purpose.

Standard size is 3/8" x 16" x 48".

## FUNCTION AND UTILITY

To provide a fireproof plaster base for steel or wood supports as indicated by tests. Plain ROCKLATH provides a bond with gypsum plaster having a factor of safety of 144 and is the equal of Perforated ROCKLATH with respect to:

1. Resistance to sound transmission.
2. Structural strength.
3. Durability.
4. Low cost.
5. Complies with ASTM and Federal Specifications.

## LIMITATIONS OF USE

Same as Perforated ROCKLATH plaster base except that where a one hour fire protection is required, then Perforated ROCKLATH should be used. (See Technical Data Chart.)

## TECHNICAL DATA

### PARTITIONS

| Construction | Total Weight Per Sq. Ft. | Fire Rating | Reference | Sound Trans. Loss | Reference |
|---|---|---|---|---|---|
| 3/8" Plain or Insulating ROCKLATH, nail-on, 2"x4" studs. Plastered with gypsum plaster 1:2—1:2 | 15.0 lbs. | 45 Min. | National Bureau of Standards | 41.1 | National Bureau of Standards |
| 3/8" Plain or Insulating ROCKLATH, nail-on, 2"x4" studs. Plastered with wood fiber plaster. | 13.7 lbs. | 1 Hr. | National Bureau of Standards | 41.1 (1) | |
| 3/8" Perforated ROCKLATH, nail-on, 2"x4" studs. Plastered with gypsum plaster 1:2 —1:2. | 15.0 lbs. | 1 Hr. | National Bureau of Standards | 41.1 (1) | |
| 3/8" Perforated ROCKLATH—Resilient clips. Plastered with gypsum plaster 1:2 —1:2. | 15.0 lbs. | 45 Min. | A Nationally Recognized Fire Testing Laboratory (2) | 47.0 | National Bureau of Standards |
| 3/8" Perforated ROCKLATH—Resilient clips. Plastered with wood fiber plaster. | 13.7 lbs. | 45 Min. (1) | | 47.0 (1) | |

### CEILINGS

| | | | | | |
|---|---|---|---|---|---|
| 3/8" Perforated ROCKLATH nailed to 2"x 10" wood joists with 5/16" headed nails. 3/4" sub floor—diaphragm of asbestos paper—T&G finished floor. Ceiling plastered with gypsum plaster 1:2—1/2" thick. | 6.0 lbs. | 30 Min. | National Bureau of Standards | No Test | |
| Same as above except nails had 3/8" head. | 6.0 lbs. | 45 Min. | National Bureau of Standards | No Test | |
| 3/8" Perforated ROCKLATH nailed to 2"x 10" wood joists with 3/8" headed nails. Striplath applied to joints with 3/4" nails having 1/2" head. Plastered with gypsum plaster 1:2—1/2" thick. | 6.0 lbs. | 1 Hr. | National Bureau of Standards | No Test | |
| Plain ROCKLATH—Resilient Clips. Plastered with wood fiber plaster. | 5.3 lbs. | 20 Min. (1) | | 50.0 (1) | |
| Plain ROCKLATH nailed to 2"x10" joists and Striplath joints. Plastered with wood fiber plaster and finished with SABINITE* "M" Acoustical plaster. | 5.0 lbs. | 1 Hr. 15 Min. (1) | | 42.0 (1) | |

(1) Estimated from available data. (2) Name on request.

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# INSULATING ROCKLATH

## DESCRIPTION

Insulating ROCKLATH plaster base is plain ROCKLATH plaster base with a sheet of bright aluminum foil on the reverse side.

## FUNCTION AND UTILITY

Similar to those listed for Plain ROCKLATH plus:

*Vapor Barrier*—Aluminum foil is the most effective vapor barrier known and used commercially. See rating table below. On Insulating ROCKLATH the aluminum foil is attached to the back of the lath and is properly located in the exterior wall and ceiling construction.

*Insulating Value.* When accompanied by not less than ¾" air space next to the foil, it provides insulation equivalent in value to ½" fiber insulation board.

*Cost*—One cent to one and one-half cents per sq. ft. more than Plain or Perforated ROCKLATH.

## LIMITATIONS OF USE

Same as Plain ROCKLATH, except for vapor transmission.

## SPECIFICATIONS

*Use specifications given for Plain or Perforated* ROCKLATH, *adding the following paragraph:*

### MATERIALS

Gypsum lath for exterior walls and top floor ceilings shall be Insulating ROCKLATH plaster base ⅜" x 16" x 48", manufactured by United States Gypsum Company.

## EFFECT OF VAPOR BARRIERS ON CONDENSATION

Atmospheric air always contains moisture in the form of an invisible gas, water vapor. Like all gases, this water vapor exerts pressure, the greater the quantity of it present in the air at a given temperature, the higher the pressure. Consequently, just as water at a higher level will flow to a lower point unless a barrier is interposed, so water vapor at a higher pressure will flow to an area of lower pressure unless a suitable barrier intervenes.

In the typical example shown, the higher water vapor on the inside exerts a higher pressure than exists outside. It, therefore, flows toward the outside, progressively meeting colder and colder temperatures. As the temperature decreases, the air can hold less and less water vapor without becoming saturated with it. So, at a point near the back of the sheathing in both walls, temperatures are reached where the air can no longer hold the water vapor moving into it, and the excess water vapor condenses out within the constructions. However, the rate of vapor flow toward the outside in the "Conventional Wall" is about 20 times as great as it is in the "Vapor Barrier Wall," because the vapor permeability of the plaster and lath in the former is about 20 times that of the plaster lath and *foil* in the "Vapor Barrier Wall." As a result, the condensation in the "Conventional Wall" is about 2½ gallons per one thousand square feet of wall per day, whereas only about 1 pint condensed out in the same area of "Vapor Barrier Wall."

When the atmospheric conditions indicated are of considerable duration, the amount of condensation in the "Conventional Wall" is sufficient to damage the interior decoration, exterior paint, or any of the other wall components. In the "Vapor Barrier Wall," however, the quantity of condensate is so minor as to be readily dissipated.

### Recommendations

1. An efficient vapor barrier should be installed in all exterior walls and ceilings in locations where below freezing weather occurs for extended periods of time.

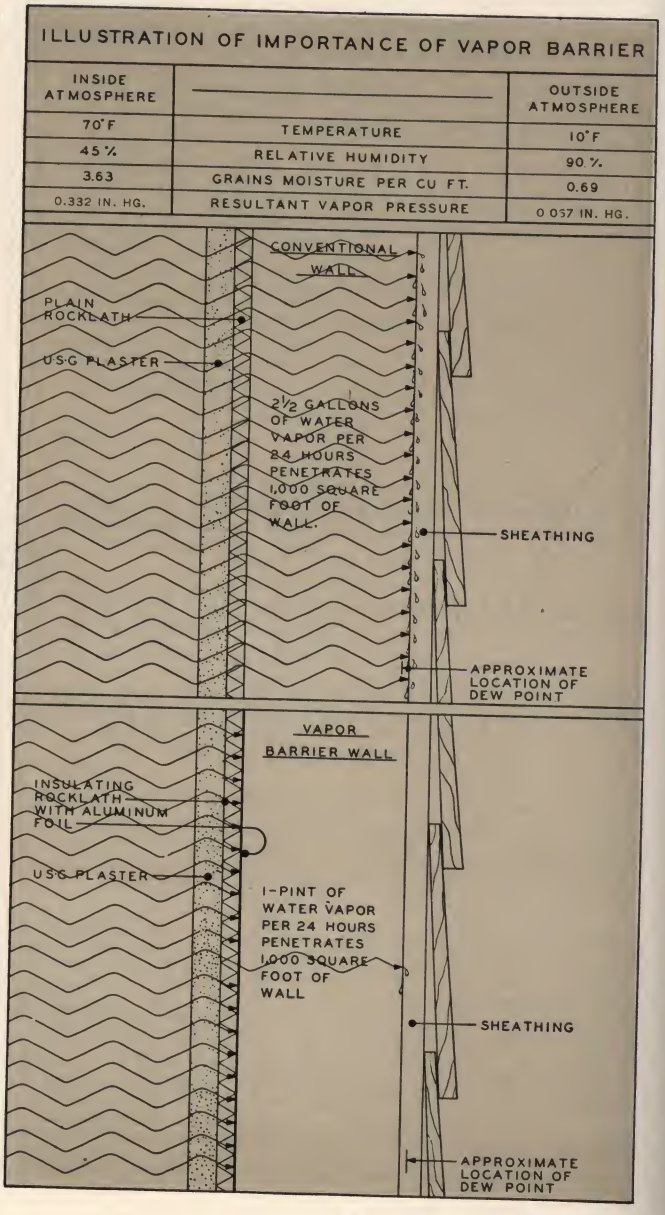
2. Vapor barrier should be on the warm side of the wall.

3. Vapor barrier should have a vapor permeability of not more than 1.00 grain per square foot, per hour, per inch of mercury vapor pressure difference.

4. Aluminum foil is one of the most efficient vapor barriers known and used commercially. When applied at our factory to the back of ROCKLATH plaster base or SHEETROCK* gypsum wallboard, the resultant products are known as Insulating ROCKLATH and Insulating SHEETROCK. Permeabilities to vapor transmission of these and other materials are shown below.

| Material | Permeability in Grains Per Sq. Ft. Per Hr. Per Inch Hg. |
|---|---|
| Insulating ROCKLATH and Insulating SHEETROCK | 0.085 to 0.385 |
| Duplex Papers | 0.515 to 2.56 |
| Insulation Back-up Paper | 0.860 to 3.40 |
| Fir Sheathing | 2.94 |
| ½" Plywood | 2.66 to 3.35 |
| Paint Film | 3.43 |
| Plaster with 3 coats lead and oil paint | 3.68 to 3.84 |
| Pine lap siding | 4.90 |
| Slaters Felt | 5.15 to 25.60 |
| Plaster on wood, fiber board or plain gypsum lath | 11.0 to 20.5 |
| Fiber board sheathing | 25.7 to 34.2 |
| Still air | 34.7 |

For other permeability ratings see BSM-63—Bureau of Standards.



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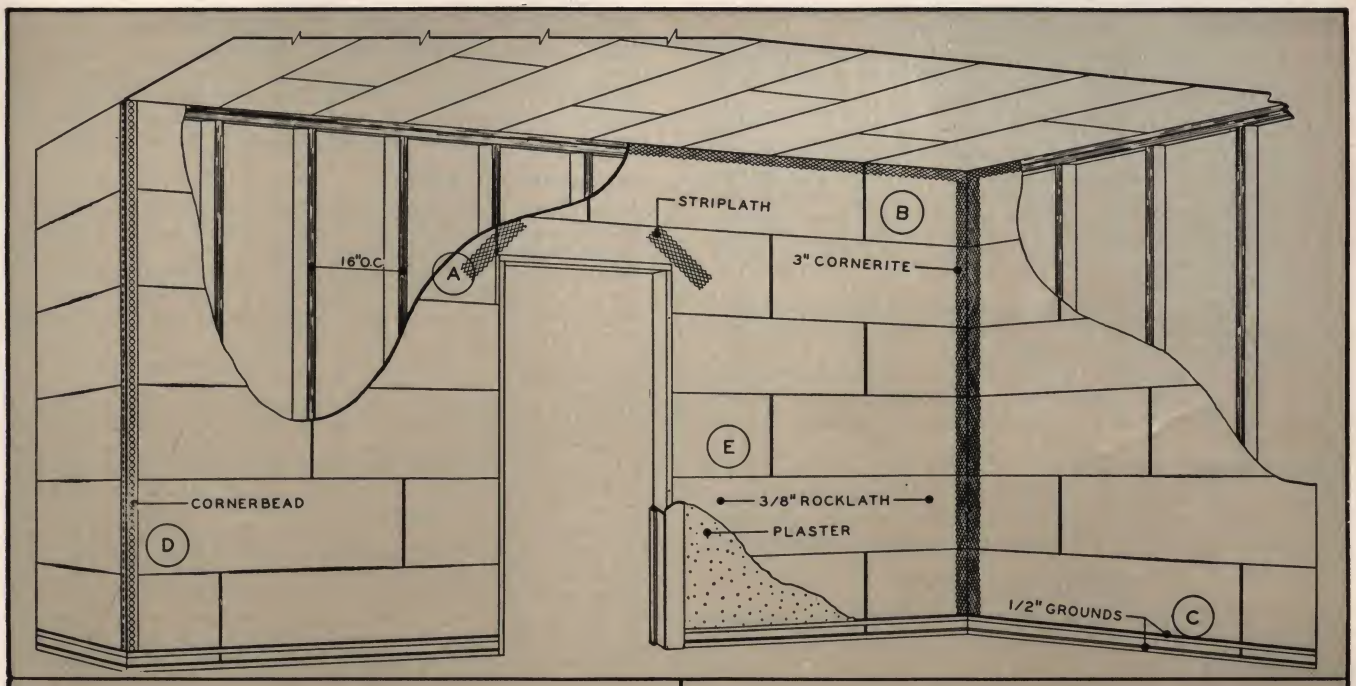
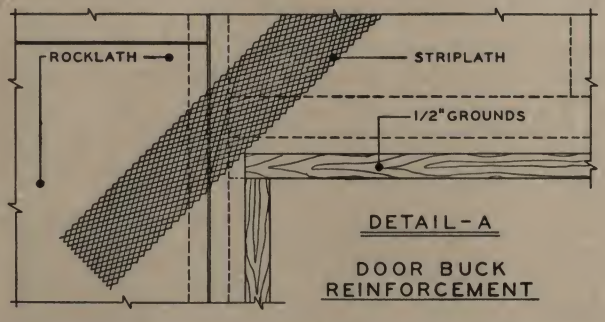
# ROCKLATH PLASTER BASES — Details

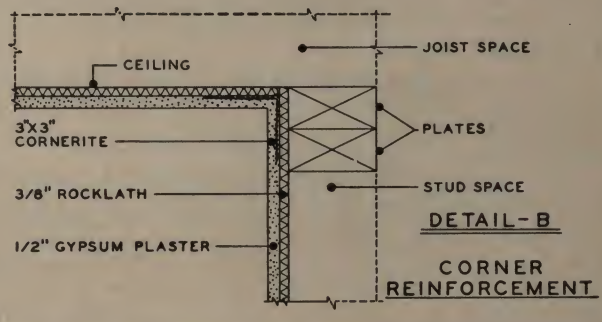




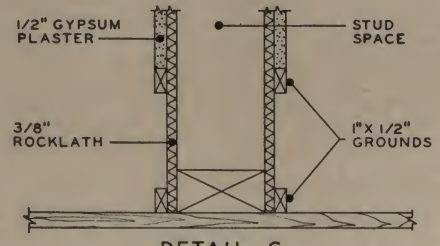

DETAIL-A

DOOR BUCK REINFORCEMENT



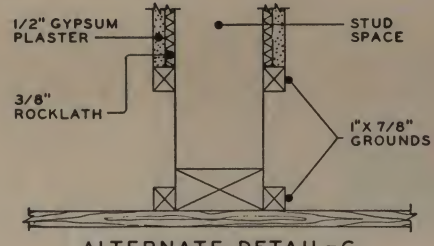

DETAIL-B

CORNER REINFORCEMENT



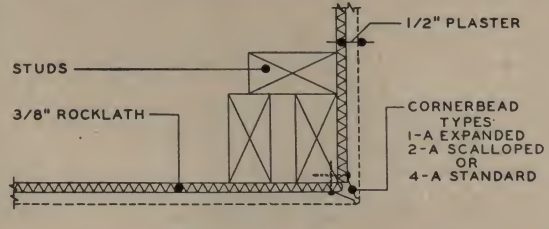

DETAIL-C

1/2" GROUNDS OVER ROCKLATH

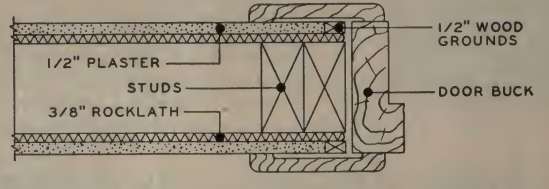



ALTERNATE DETAIL-C

7/8" GROUNDS ON WOOD STUDS




DETAIL-D




DETAIL-E

DOOR BUCK

SCALE: 1½"=1'-0"

# ROCKLATH RESILIENT LATHING SYSTEM

## DESCRIPTION

The ROCKLATH Resilient Lathing System is a method for attachment of ROCKLATH plaster base, "floating" it free from the framing by means of resilient spring clips.

## FUNCTION AND UTILITY

*EXCELLENT RESISTANCE TO SOUND TRANSMISSION.* National Bureau of Standards assigns a sound transmission loss rating of 47.0 db. to a wood stud partition with resilient clips, gypsum lath and plaster both sides. See Technical Data Page 3.

*MAXIMUM CRACK RESISTANCE.* Spring clips permit limited movement of framing members, their resilience reducing the strain on the plaster coat.

*REDECORATION ECONOMY.* Minimizes possibility of streaking of decoration due to unequal temperatures where plaster base normally contacts framing members.

*FLEXIBLE.* Is applied to wood, steel or masonry construction.

*COST.* The increase in cost is only nominal and represents principally the addition of cost of clips over the nail-on system of application.

## LIMITATIONS OF USE

Same as for Plain ROCKLATH plaster base. Plain or Perforated ROCKLATH plaster base is recommended for side walls. Only plain ROCKLATH with 3 coats of plastering is recommended for ceilings.

## SPECIFICATIONS

(*Include the following paragraphs in the basic* ROCKLATH *plaster base Specification.*)

## SCOPE

Designated areas shall be lathed and plastered with the United States Gypsum Company ROCKLATH Resilient System.

## CARPENTRY WORK

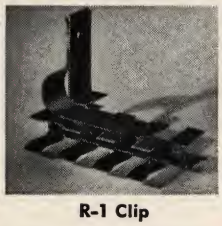
(*For inclusion in the Carpentry Specifications.*) Grounds for Resilient Lathing System shall be 1¼". Furnish bucks of sizes detailed at all door openings.

## MATERIALS

Lath shall be (Plain) (Perforated) (Insulating) ⅜" x 16" x 48" ROCKLATH plaster base, made by the United States Gypsum Company. Clips for attachments shall be USG Resilient ROCKLATH Clips of type required made and recommended by United States Gypsum Company. Cornerbeads shall be (1A Expanded) (4A Standard) manufactured by United States Gypsum Company.

## APPLICATION

ROCKLATH plaster base shall be applied face out with the long dimension at right angles to the framing members with staggered end joints. Also stagger joints between walls and ceilings so that vertical joints on wall will not meet ceiling joints. All ROCKLATH corners shall occur over framing members and be secured with clips. Also, a clip shall be placed at every intersection of ROCKLATH edges and framing members. ROCKLATH shall be attached to framing members by means of USG Resilient ROCKLATH Clips spaced 16" on center in both directions. Attachment clips shall be used per following schedule:

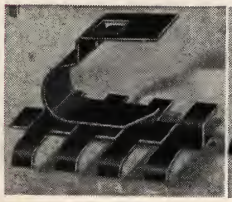


R-1 Clip

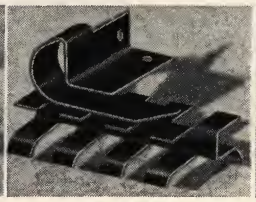
R-2 Clip

| | |
|---|---|
| For field | R-1 |
| Corners and angles | R-2 |
| Ceiling channels | R-3 |
| Wood furring | R-4 |
| Solid masonry | R-5 |

All cornerbeads shall be attached to ROCKLATH with staples or tie wires. Under no circumstances shall ROCKLATH or accessories be attached to framing. (*See construction details on next page.*)



R-3 Clip



R-4 Clip

R-5 Clip

## REDUCTION OF SOUND TRANSMISSION

With the advent of lightweight construction during recent years, the problem of sound transmission has become increasingly acute. Industry and the Bureau of Standards have expended large sums in research, and we now have a fairly comprehensive knowledge of sound transmission and methods of reducing this annoyance.

### Types of Sound Travel

*Impact Sound*, as the name implies, is created by physical impact. A machinery installation is a typical example and requires individual study to provide proper isolation. Impact sounds are the least annoying and they are not considered in this discussion. *Air-borne Sound* travels in all directions through the air from its source. It is the more common annoyance and the principal subject of this discussion.

### Discussion

Sound is energy which travels in waves very much like those a pebble makes when thrown into a pool of placid water. Instead of traveling in a plane, as do the pebble-caused waves, air-borne sounds travel in all directions. These sound waves are so constituted that for half the duration of each wave the sound energy *pushes* against walls and ceilings because the air is in *compression.* For the remaining half of the cycle, the energy exerts a *pulling* force because the air is *rarified.* As these waves or cycles follow each other in rapid succession, they cause a vibration of the partition or ceiling. In other words, a construction acts as a diaphragm similar to that in a telephone receiver. The side opposite the source of sound is forced to vibrate, thus actually recreating sound in the adjacent room. Thus sound does not generally permeate from particle to particle through a construction to be emitted to the opposite side, but is recreated by diaphragmatic action.

### Reduction of Sound Transmission

There are two well-known methods of reducing sound transmission:

1. The use of heavy construction which will remain relatively immovable against sound energy. Sound transmission decreases with increasing weight of homogenous construction. A 12" masonry partition is considered quite resistant to sound transmission, but it is uneconomical.

2. The use of a "Shock Absorbing" system between the source of sound and the structural elements of the partition. This is a generally accepted means of decreasing sound transmission, and is the principle employed in *resilient lath and plaster construction.* This simply, but effectively, separates the structural part of the wall (stud or masonry), from the lath and plaster by means of steel springs which permit the lath and plaster to vibrate independently, thus decreasing the energy transmitted to the structural part of the wall. If the vibration of the structural section of the wall is considerably reduced, then the vibration of the lath and plaster surface on the side opposite the source of sound is similarly reduced; hence, the amount of sound recreated on that side is correspondingly lessened. The steel used in the manufacture of clips is specially chosen for its ability to provide both the required resiliency and durability.

### How Sound Is Measured

Sound is measured according to its intensity or loudness. The unit of measure of this loudness is the decibel, generally abbreviated as "db". A change in intensity of one decibel is approximately the smallest change in loudness that the average ear can detect.

Soft radio music has a loudness of about 35 db.

A stenographic room has a loudness of about 70 db.

The effectiveness of ceilings or partitions in preventing sound travel is expressed as a *sound transmission loss rating.* If an office is separated from a stenographic room (70 db. loudness) by a partition having a sound transmission loss rating of 40 db, then a loudness of 30 db. (70 db. less 40 db.), will be detected in the office *if its noise level is zero.* If, however, the loudness in the office is 25 db., then only 5 db. of the stenographic room loudness will be detected. If the office noise level is 30 db., then no noise transmission will be detected.

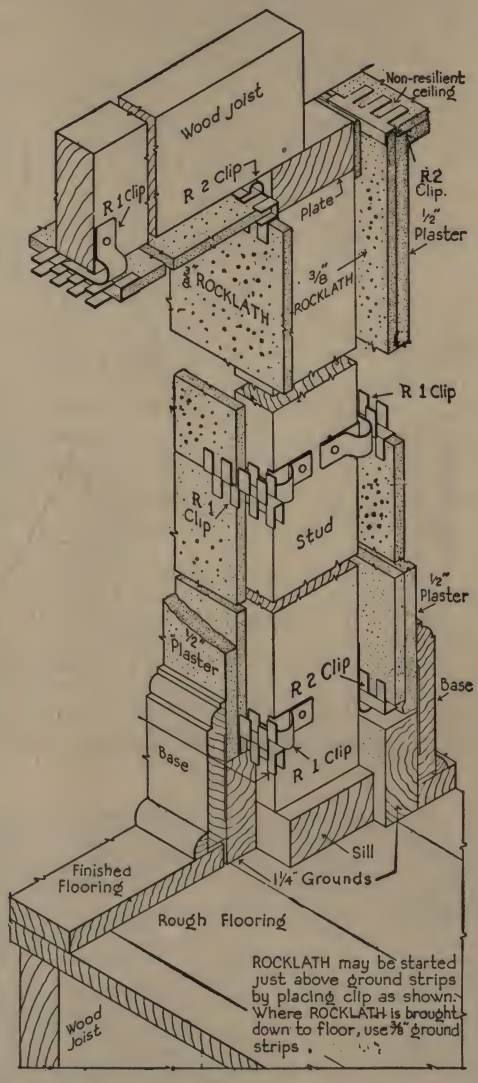
The National Bureau of Standards has evaluated many constructions for their resistance to sound transmission. While these are accurate laboratory tests, it cannot be assumed that their values will be duplicated in the field. For example, air and ventilating ducts or pipes often decrease the value of sound insulation methods. Sound travel over and under partitions may reduce the overall efficiency. Therefore, rated values of *sound transmission loss* are only relative and not always duplicated on the job.

See Technical Data Table Page 3 for sound transmission loss ratings.

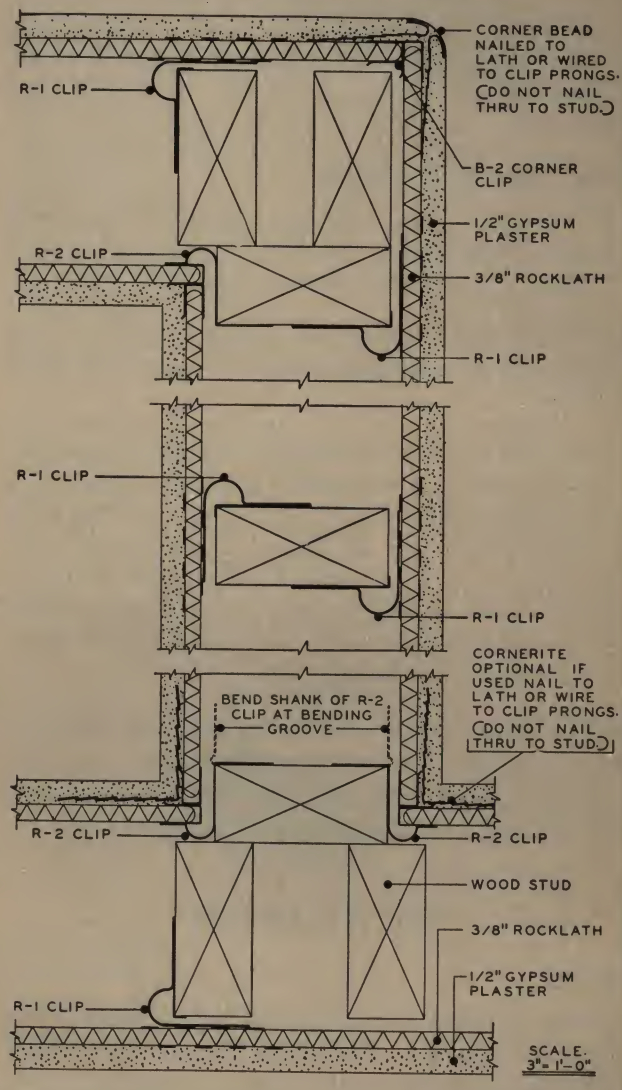
# ROCKLATH RESILIENT LATHING SYSTEM

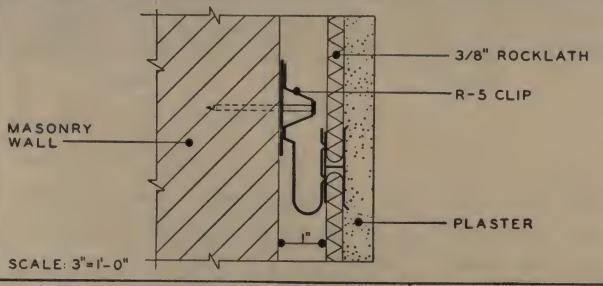


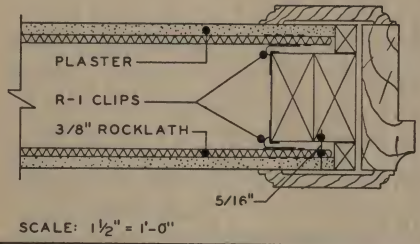
## WALL AND CEILING



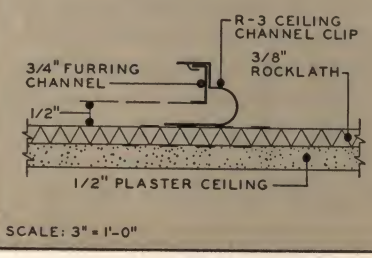

## WALL CORNER CONSTRUCTION

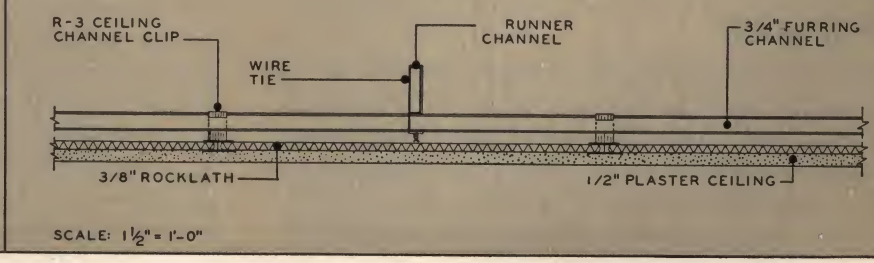

CORNER BEAD NAILED TO LATH OR WIRED TO CLIP PRONGS. (DO NOT NAIL THRU TO STUD.)
R-1 CLIP
B-2 CORNER CLIP
1/2" GYPSUM PLASTER
R-2 CLIP
3/8" ROCKLATH
R-1 CLIP
R-1 CLIP
R-1 CLIP
CORNERITE OPTIONAL IF USED NAIL TO LATH OR WIRE TO CLIP PRONGS. (DO NOT NAIL THRU TO STUD.)
BEND SHANK OF R-2 CLIP AT BENDING GROOVE
R-2 CLIP
R-2 CLIP
WOOD STUD
3/8" ROCKLATH
1/2" GYPSUM PLASTER
R-1 CLIP
SCALE. 3" = 1'-0"




## DOOR BUCK DETAIL



# BRIDJOINT LATHING SYSTEM

## DESCRIPTION

The BRIDJOINT Lathing System is a clip application of ROCKLATH plaster base on walls and ceilings so designed that ends (16″ dimension) of the lath fall between (not on) framing members.

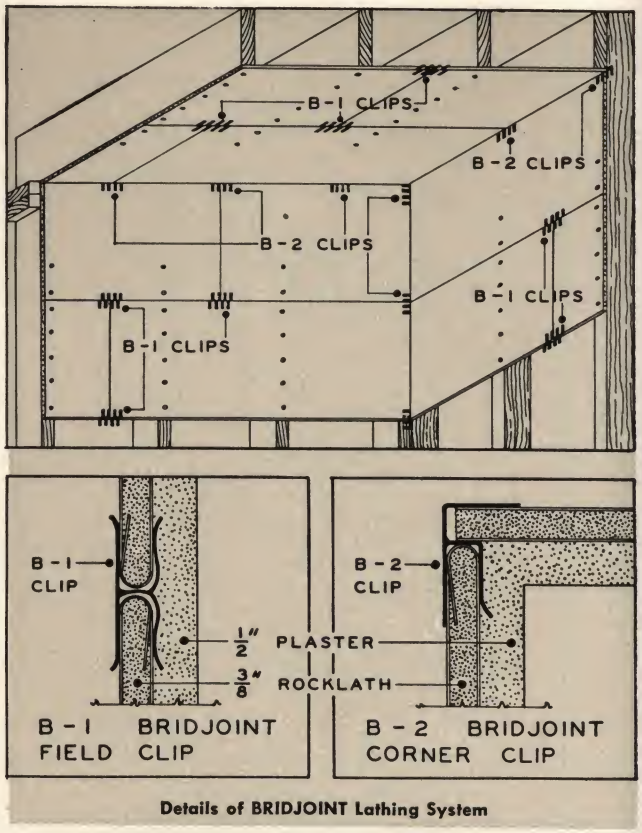
## FUNCTION AND UTILITY

*RESISTANCE TO CRACKING.* Removal of gypsum lath ends from framing members increases resistance to cracking at the most vulnerable points.

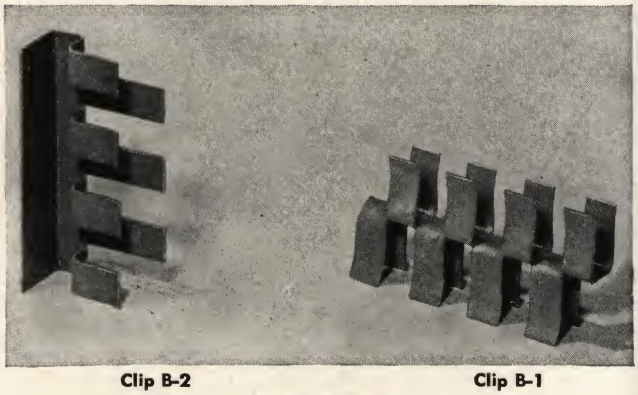
*FRAMING MEMBERS* need not be exactly 16″ on centers, as ends of the lath may occur at random except at corners.

*ADAPTABLE OVER NAILABLE STEEL FRAMING,* if framing members are spaced not more than 24″ on center, and provided that ½″ thick, plain ROCKLATH is used in lieu of the ⅜″. Nails of not less than ⅜″ head shall be used and must be of sufficient length to extend beyond the nail retention curve of the member, or of special design to lock in member as recommended by manufacturers of framing.

*COST.* Twenty-five percent less nailing of the lath is required. Cornerite and nailing are eliminated in corners, making for speed and economy. This results in only a slight increase over the cost of nail-on construction.




**Details of BRIDJOINT Lathing System**



**Clip B-2** **Clip B-1**

**BRIDJOINT Clips**

## SPECIFICATIONS

### SCOPE

Designated areas shall be lathed with United States Gypsum Company BRIDJOINT Lathing System. Grounds shall be ⅞″.

### MATERIALS

Lath shall be (Plain) (Perforated) (Insulating) ⅜″ x 16″ x 48″ ROCKLATH, made by United States Gypsum Company. Clips for attachment shall be BRIDJOINT* Clips, manufactured by United States Gypsum Company. Cornerbeads shall be manufactured by United States Gypsum Company. Nails shall be 1⅛″ x 13 gauge blued ⅜″ flat head smooth diamond point.

### APPLICATION

ROCKLATH shall be applied with the long dimensions at right angles to the framing members with staggered end joints. Also stagger joints between walls and ceilings so the vertical joints on walls will not meet ceiling joints. Space nails approximately 4″ apart, using 5 nails per lath, per support where nails are called for. ROCKLATH units forming the ceiling angles should be nailed only from the center of the lath to the edge, away from the ceiling angle. ROCKLATH plaster base shall be applied to framing members in such a manner that ends (16″ dimension) of lath do not fall on framing members. Secure end joints to adjacent laths by the use of B-1 Field Clips at each corner of each lath. The internal corners of lath and external angles are to be secured to each other by the use of B-2 Corner Clips. Do not nail ROCKLATH in corners. For external angles, cornerbead shall be stapled or tie-wired to ROCKLATH. It shall not be secured to framing.

**Trademarks Reg. U. S. Pat. Off.*

# BRACE-TITE LATHING SYSTEM

## DESCRIPTION

The BRACE-TITE Lathing System is a mechanical suspension of ROCKLATH plaster base to standard metal grillage (¾" channels not over 16" o.c.).

## FUNCTION AND UTILITY

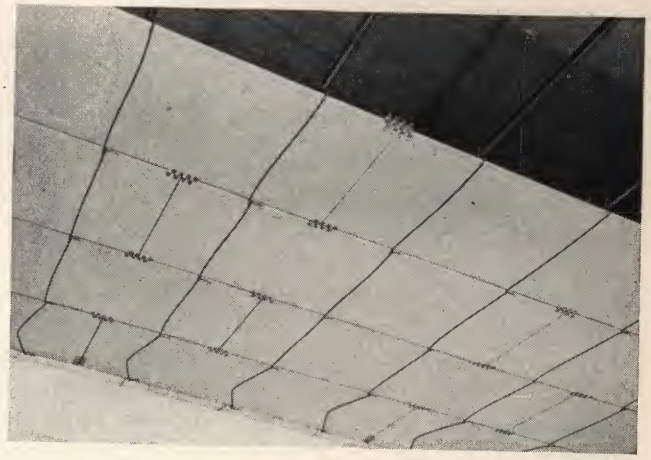
*RIGIDITY SIMILAR TO NAIL-ON.* The field clips, spaced 16 inches o.c., support the ROCKLATH across the full width of the board. The spring action of the field clip increases rigidity.

*EASY TO APPLY.* The loop of the BRACE-TITE field clip is dropped over the channel and hooked into the eye of the preceding clip.

*RAPID ERECTION.* Only three clips are required for each sheet of ROCKLATH plaster base plus two USG BRIDJOINT* B-1 clips at the end joint.

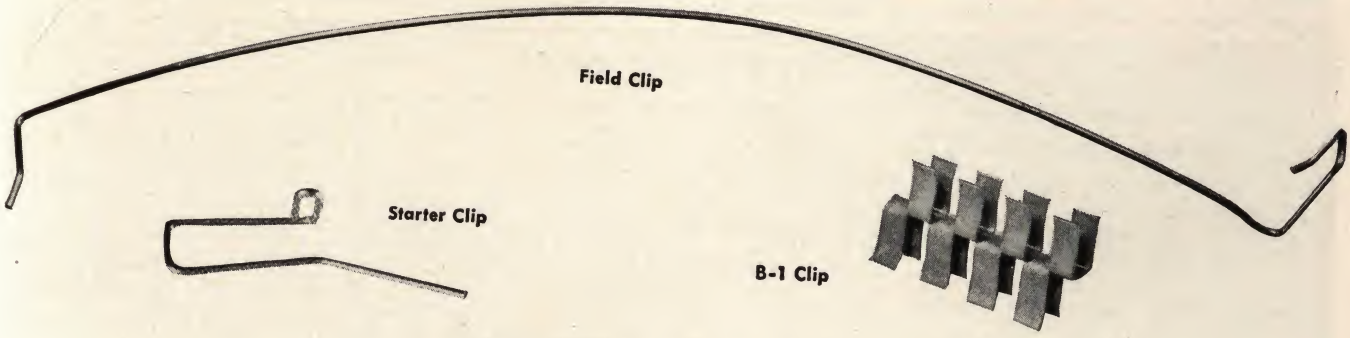
*NO SPECIAL MATERIALS.* Any standard ¾" channels, hot or cold rolled, may be used on conventional 16-inch or 12-inch spacing. Plain, Perforated or Insulating ROCKLATH plaster base may be used.

*ADAPTABLE.* The BRACE-TITE system may be used with any type of suspension having ¾-inch channels not over 16 inches on center.



*REINFORCES PLASTER.* The wire clip embedded in the plaster increases crack resistance.

*COST.* As the BRACE-TITE system requires only ½-inch of plaster in two coats, its use results in economy of application. The cost under normal conditions will approximate that of other types of mechanical suspension.




# SPECIFICATIONS

## SCOPE

Unless otherwise shown on plans, all ceilings are to be lathed with the BRACE-TITE Lathing System.

## MATERIALS

*CHANNELS*—Channels shall be USG ¾" cold rolled channels, painted.

*LATH*—Gypsum lath shall be ⅜" x 16" x 48" ROCKLATH Plaster Base (Plain, Perforated or Insulating).

*CLIPS*—Attachment clips shall be BRACE-TITE Field and Starter Clips. End joint clips shall be USG B-1 BRIDJOINT* Field Clips.

*CORNERITE*—Cornerite shall be USG cornerite.

All of the above materials manufactured by United States Gypsum Company.

## APPLICATION

¾" channels shall be applied to supporting 1½" channels or framing members, spaced 2" from parallel walls or beams and not over 16" on centers and securely wire-tied or clipped. The channel ends must extend beyond the plane of the abutting side wall. Place a BRACE-TITE starter clip over the end of the ¾" channel at the point where it meets the starting wall. ROCKLATH Plaster Base shall be applied with the long dimension at right angles to the ¾" channel. ROCKLATH shall rest on top of the starter clip loops, and shall be fastened to each channel with a BRACE-TITE field clip. ROCKLATH end joints shall fall midway between channels and shall be secured with USG B-1 BRIDJOINT field clips on both sides. Succeeding courses of ROCKLATH Plaster Base shall be attached with BRACE-TITE field clips hooked over the channel and fastened into the eyes of the preceding clips. End joints of ROCKLATH shall be staggered, and shall not coincide with the end joints of previous courses. All end joints shall be secured with B-1 BRIDJOINT Clips on both sides.

The last course of ROCKLATH shall be cut to the width required to fill the remaining space. The BRACE-TITE field clip used for this final course shall be inserted over preceding clip, pulled tight into eye and excess length cut off.

Where ¾" channel runs are interrupted by light troffers, grills, etc., BRACE-TITE starter clips shall be used to start a new course of ROCKLATH. For these locations, the extended leg of the starter clip shall be cut off so as not to protrude below the brown coat of plaster.

Angles between the ceiling and all vertical planes shall be reinforced over the ROCKLATH Plaster Base with USG Cornerite. The Cornerite shall be secured sufficiently to retain its position during plastering.

**NOTE**— Plaster shall be RED TOP* Gypsum Plaster manufactured by United States Gypsum Company, and shall be applied in accordance with the manufacturer's specifications for application over ROCKLATH Plaster Base.

**Trademarks Reg. U. S. Pat. Off.*

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# 2" SOLID ROCKLATH AND PLASTER PARTITION

## DESCRIPTION

The 2" Solid ROCKLATH and Plaster Partition is a studless, non-loadbearing partition consisting of long length ROCKLATH plaster base, held vertically in floor and ceiling runners, and plastered on both sides.

*Size of ROCKLATH*—½" thick, 24" wide by ceiling-high lengths with longitudinal "V" edges.

## FUNCTION AND UTILITY

*Fireproof*—Composed essentially of gypsum, the partition is incombustible and will not transmit temperatures greatly in excess of 212° until completely calcined—a slow process. See Technical Data for one hour fire rating.

*Lightweight*—Only 16 lbs. per sq. ft. of finished partition.

*Space Saving*—Saves 40 to 60 per cent of space occupied by conventional partitions. In every five lineal feet, a 2" partition creates one extra square foot of usable space over a 4½" partition.

*Lateral Strength*—The records of an official impact test show that a 60-lb. weight, traveling through a 4-foot fall, failed to produce a discernible crack on a full sized partition after three successive impacts.

*Cost*—Without consideration to space saving, the actual cost is comparable and competitive with conventional wood or metal studs with ROCKLATH plaster base and plaster, both sides.

Complies with FHA requirements for rental housing.

## LIMITATIONS OF USE

1. For non-bearing partitions only.
2. Limiting height twelve feet.
3. For 1 hour fire rating, RED TOP* plaster sanded 1:1 scratch coat and sanded 1:2 brown coat must be used.

**"ROCKLATH" and "RED TOP" are registered trademarks owned by United States Gypsum Company, used by it to distinguish its products. "ROCKLATH" identifies the particular gypsum lath or plaster base. "RED TOP" identifies the particular plaster manufactured only by United States Gypsum Company.**

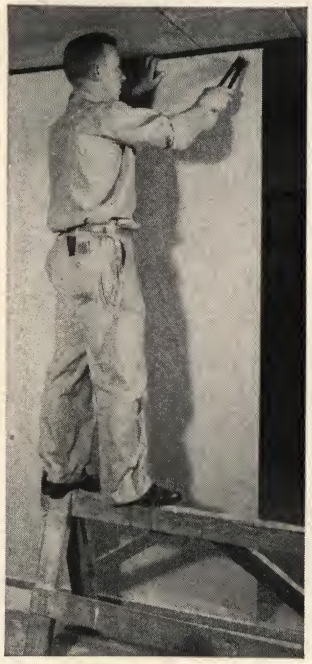
## TECHNICAL DATA

| Construction | Limiting Height | Weight Per Square Foot | Fire Rating | Reference | Sound Transmission Loss | Reference |
|---|---|---|---|---|---|---|
| ½" Long-length ROCKLATH plastered both sides with ¾" RED TOP Plaster, sanded 1:1, 1:2 | 12 Ft. | 16 Lbs. | 1 Hr. | A Nationally Recognized Fire Testing Laboratory (1) | 36.1 | Bureau of Standards |
| Same, but plastered 1:2 scratch —1:3 brown | 12 Ft. | 16 Lbs. | 45 Min. | USG Lab. | 37.3 | Bureau of Standards |

(1) Name on request.

Setting Floor Runner

Erecting ROCKLATH—Alternate Methods

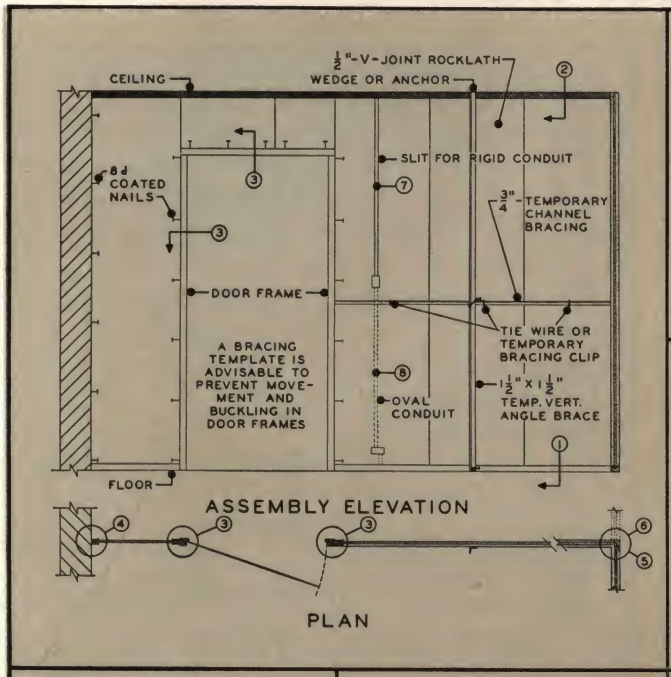


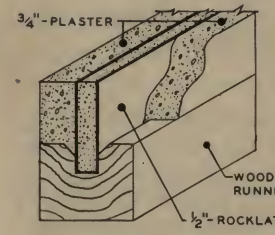
Attaching Temporary Brace

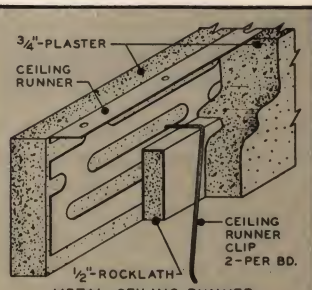


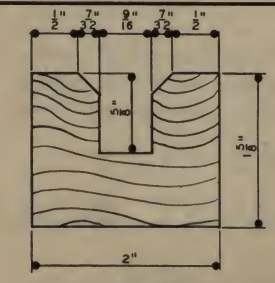
*Trademark Reg. U. S. Pat. Off.*

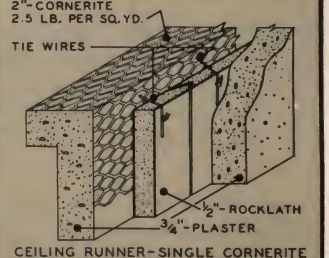
# 2" SOLID ROCKLATH AND PLASTER PARTITION

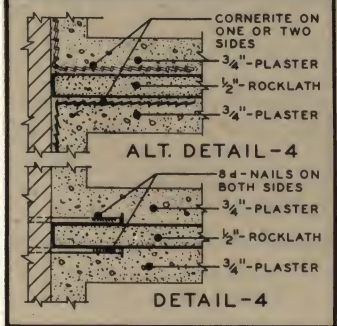


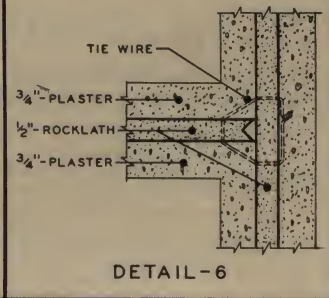



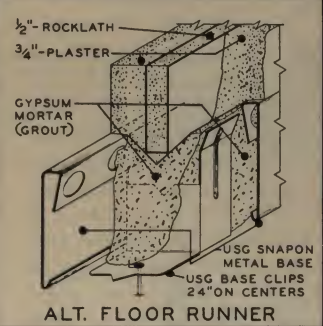



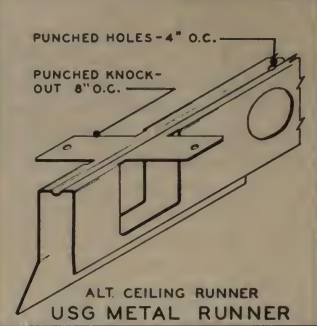



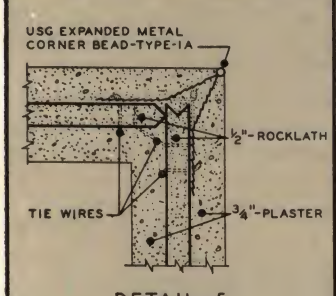



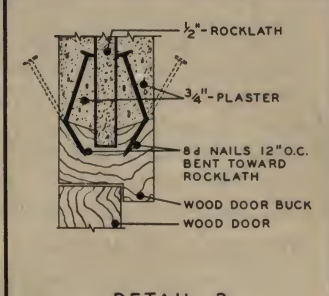



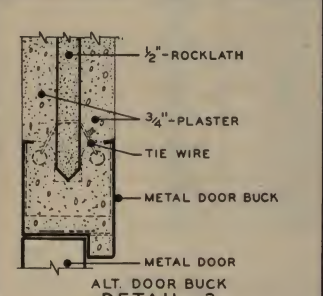



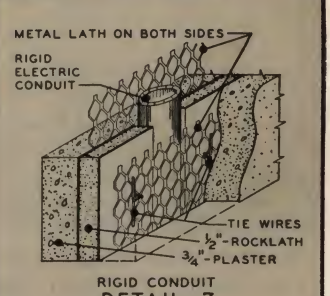



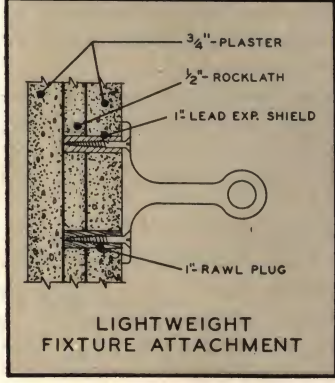



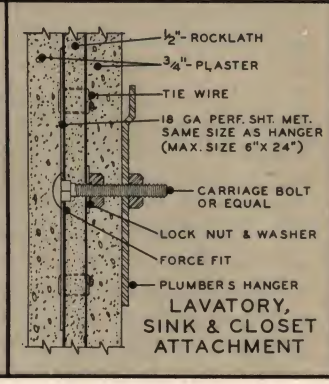



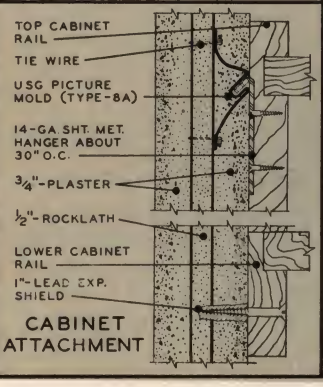



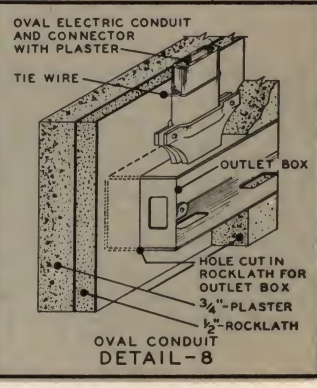



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# 2" SOLID ROCKLATH AND PLASTER PARTITION

## SPECIFICATIONS

### SCOPE

Unless otherwise shown on plans, all interior, non-load bearing partitions (*and exterior wall furring*) are included.

### MATERIALS

*Lath*—Gypsum long-length lath shall be V-Joint plain ROCKLATH ½" thick, 24" wide by ceiling-high length manufactured by the United States Gypsum Company. (Lath for furring of exterior walls shall be ⅜" square edge Insulating long-length ROCKLATH.)

*Plaster*—Shall be RED TOP Gypsum Cement Plaster manufactured by the United States Gypsum Company.

*Sand*—Shall conform to the ASTM Specification designated as C 35-39.

*Wood Runners*—Shall be 1⅝" x 2" wooden floor runners milled according to USG details, with one prime coat of paint or varnish. Wood to be of select stock and resistant to splitting. Alternate: Floor runners shall be USG Metal base.

*Metal Runners*—Shall be USG cornerite or USG metal ceiling runner.

*Priming*—Wood and Metal Runners and Bucks—to be prime-coated before plastering.

*Plaster Finish*—As selected by the architect. (See specifications under Gypsum Plaster Base Coats and Finishes. Pages 31 to 42.)

### APPLICATION

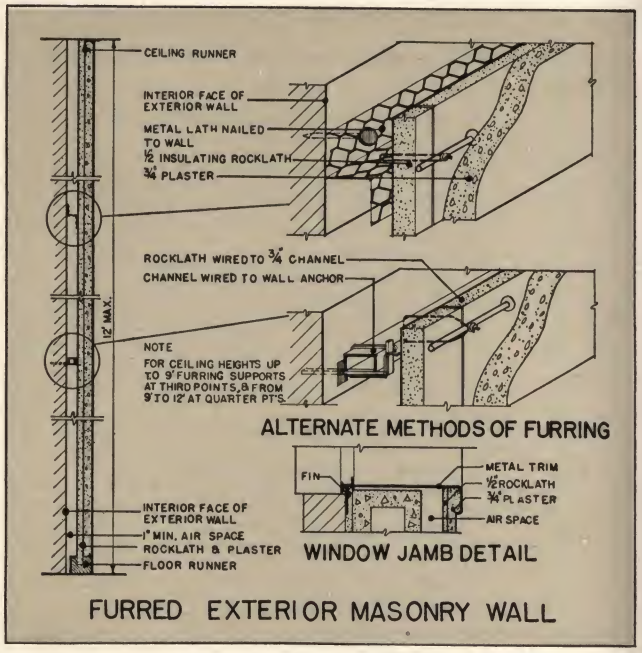
*Lathing*—Floor and ceiling runners shall be attached to rough floor and ceiling construction according to partition layout. ROCKLATH plaster base shall be cut in lengths to allow ¼" top clearance in the ceiling runner. The ROCKLATH shall be erected vertically, engaging the bottom in the slot of floor runner and either tying or clipping top to ceiling runner or engaging it in slot of ceiling runner, as required. Vertical edges of ROCKLATH shall be kept as plumb as possible and V-Joint edges be brought into intimate contact one with the other. No vertical cut edges of lath shall be used in central portion of partition. That is, the use of lath having cut edges shall be confined to such points as at the ends of the partition or at door bucks.

*Bracing*—For partitions not over 9′ in height, bracing shall consist of a ¾-inch steel channel erected horizontally just below mid-point of height. The bracing member shall extend the full length of the partition and shall be fastened to the lath by the use of tie wires looped over the channel or USG wire bracing clip at center of the lath in such a manner as to keep the lath joints together at that point as well as securing the channels to the lath. It shall be similarly wire-tied or clipped to the lath at their ends and fastened to abutting construction.

For partitions over 6 feet in length, the horizontal braces shall be reinforced by vertical struts every 6 feet or fraction thereof formed from 1½" x 1½" angles (or heavier materials) fastened securely at the bottom and wedged firmly against the construction at the head. Vertical struts shall be securely wire-tied to horizontal braces.

For partitions over 9 feet in height, two horizontal braces at third points shall be used. Attach lath in a similar manner.

*Alternate Bracing*—Bracing members shall consist of 2" x 4" wood braces erected horizontally just below mid-point of height and attached to lath with USG wire bracing clips. For partitions over 9′ high, two horizontal braces and two bracing clips per lath are required. The bracing members shall extend the full length of the partition and be anchored rigidly at the ends. Where partitions are longer than 10′, the temporary braces shall be reinforced by vertical 2" and 4" wood members, spaced not to exceed 9′ o.c., rigidly wedged at top and bottom and securely fastened to the horizontal braces.




*Plastering*—Plaster shall be sanded in proportion of 1 part plaster to 2 parts sand, by weight, for the scratch coats and 1 part of plaster to 3 parts of sand, by weight, for the brown coats. Procedure shall be as follows: (*See Note 4 under Optional Inclusions.*)

First, apply a scratch coat of plaster, about ⅜" thick, to each side of the lath. *In no case, shall application of scratch coat to second side of lath be delayed longer than the setting time of the scratch coat applied to the first side. Preferably such scratch coats should be applied simultaneously.*

*After the scratch coats have set firmly and have partially dried* (but not less than 16 hours), the brown coat shall be applied to the unbraced side, bringing it out to within 1/16" of ground dimension for finish coat to bring over-all partition thickness to 2 inches.

When brown coat has set firmly (but not less than 3 hours), braces shall be *carefully* removed from opposite side and brown coat applied to that side in a manner similar to that described for the other brown coat.

*Finish Coat*—As specified elsewhere.

### OPTIONAL INCLUSIONS

1. All exterior walls shall be horizontally furred with Z-bent strip lath or ¾" channels at third points for ceiling heights of 9′ or less and quarter points for ceilings not exceeding 12′ in height. Floor and ceiling runner tracks shall be secured in the same manner as for 2" solid ROCKLATH and Plaster Partitions.

2. Insulating ROCKLATH plaster base shall be placed in floor and ceiling runners with the bright aluminum foil toward the structural wall. Secure the Insulating ROCKLATH to Z-bent strip lath or to furring channels with tie wire. (See Details.) Adjacent sheets shall be butted snugly.

3. *Door Bucks*—Shall be as specified elsewhere. They shall be secured to the partition according to the printed instructions of manufacturer.

4. Where one (1) hour fire rating is required, change proportions to "1 part plaster to 1 part sand by weight for scratch coat and 1 part plaster to 2 parts sand by weight for brown coat." Also, wood runners should be "Fireproofed," or metal runner used.

# USG METAL LATH

## DESCRIPTION

Metal lath is sheet steel that has been slit and expanded to form a multitude of small mesh openings.

It is made from rust-resisting copper alloy steel and is further protected by dipping the expanded sheet into black asphaltum paint. (Exception: 3.4 lb. diamond mesh when made from galvanized sheets.) For sizes and weights—See Technical Data page 18.

## FUNCTION AND UTILITY

Metal lath is used as a plaster base and as centering for concrete.

*FIRE RESISTANT*—Metal lath and gypsum plaster provide the fire ratings shown on page 18.

*STRENGTH AND REINFORCING*—Metal lath embedded within the plaster thickness provides tensile strength in a similar manner to steel reinforcement in concrete slabs, thus providing unusually high resistance to transverse impact. It decreases the hazards of cracks and failures due to structural movement of the frame.

*FLEXIBLE*—Metal lath is readily shaped to ornamental contours to a degree not possible with other plaster bases.

*QUALITY PLASTERING*—The use of metal lath as a plaster base is conducive to good plastering because it makes the use of oversanded plaster in the scratch coat impractical.

*LONG RANGE ECONOMY*—Metal lath is intended for highest quality, fire resistant, durable plastering with low maintenance costs.

### *Limitations of Use*

1. The minimum weights of lath for spacing of supports listed in Technical Data must be observed.
2. The securing of metal lath to supports should be according to the specifications printed herein.
3. Only clean sand should be used for plastering. Unwashed salt water sand should not be used.
4. When abnormally high humidity, moisture or acid fumes are anticipated, our nearest sales office should be consulted.

*CAUTION—Failure to observe these limitations may result in failure*

# USG METAL LATH TYPES

## USG DIAMOND MESH LATH

A small mesh (approximately 11,000 meshes per yard) diamond pattern metal plastering base.

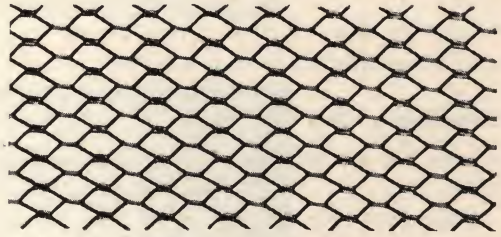
Size: 27″ x 96″.

Weights: 2.5 lbs. and 3.4 lbs. per square yard.

A general all-purpose lath. Best for ornamental, contour plastering. The small meshes conserve plaster and reduce droppings. Nationally available.

### *Limitations of Use*

USG Expanded Metal Stuccomesh is preferred as a stucco base.



USG Diamond Mesh Lath

## USG 1/8″ RIBLATH (Flat Riblath)

A herringbone mesh pattern, with 1/8″ deep Z-shaped ribs running lengthwise of the sheet at 1½″ intervals.

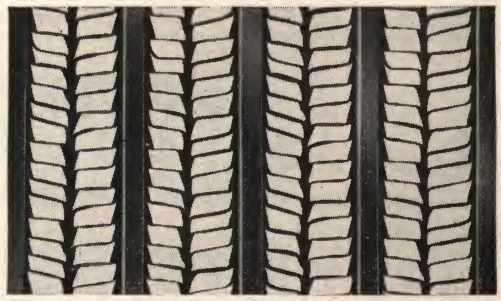
Size: 24″ x 96″, 27″ x 96″.

Weights: 2.75 lbs. and 3.4 lbs. per square yard.

Stiffening ribs and herringbone pattern increase rigidity, thus permitting a wider spacing of supports or a saving in the weight of lath required. Particularly suitable for attachment by nailing. Its unusual rigidity permits the application of basecoat plaster, scratch and brown coats, in a "double-up" operation. Small meshes conserve plaster materials.

### *Limitations of Use*

Its rigidity makes it unsuitable for contour plastering. Use Diamond Mesh.



USG 1/8″ Riblath

## USG 3/8″ RIBLATH

A herringbone pattern mesh with 3/8″ deep V-shaped ribs running lengthwise of the sheet at 8″ intervals, with inverted intermediate 1/8″ ribs.

Size: 24″ x 96″.

Weights: 3.4 lbs. and 4.0 lbs. per square yard.

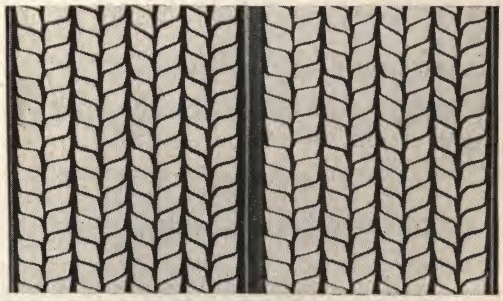
The heavy ribs provide exceptional rigidity. Used when supports are spaced more than 16″ o.c. and not more than 24″ o.c.

Desirable as a plaster base for heavy duty plastering.

Used as centering and reinforcement for concrete floor and roof slabs. See Technical Data, page 27.

### *Limitations of Use*

Its extreme rigidity makes 3/8″ Riblath unsuitable for contour plastering. Use Diamond Mesh Lath.



USG 3/8″ Riblath

# USG METAL LATH TYPES (Cont'd)

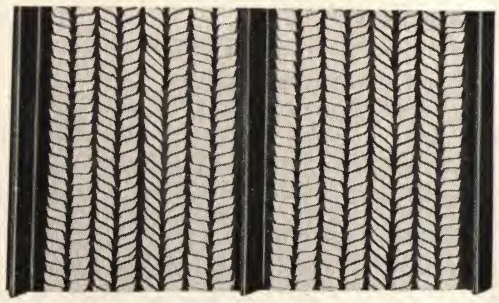
### USG ¾" RIBLATH

A herringbone pattern mesh with ¾" deep V-shaped ribs lengthwise of the lath at 4" intervals.

Sizes: 2' x 8', 2' x 10' and 2' x 12'.

Weights: .60 lb. and .75 lb. per square foot.

A structural lath, providing the dual functions of centering and reinforcement for concrete floor and roof slabs. (See Data on page 6.)



USG ¾" Riblath

#### *Limitations of Use*

Not recommended as a plastering lath.

### USG EXPANDED METAL STUCCOMESH*

A 1⅜" x 3⅛" diamond pattern mesh made of copper bearing steel, asphaltum painted. USG Stucco Furring nails are 1½" long and galvanized. They are equipped with a device which supports the mesh and spaces it ⅜" from the sheathing.

#### *Special Functions*

Designed as a base for exterior stucco, hand or pneumatically applied. The furring nails, equipped with ⅜" sliding spacers, provide for rapid erection of rigid furring and position the mesh for positive reinforcement of the stucco.

#### *Limitations of Use*

Should not be applied without using Stuccomesh furring nails.

When used over sheathing other than wood, longer nails, providing a minimum penetration of 1⅛" into studs, should be substituted for the 1½" nails specified.

USG Expanded Metal Stuccomesh

#### *Specification*

USG Stuccomesh shall be applied with USG Stucco Furring nails spaced not to exceed 16" horizontally and 6" vertically. Adjacent sheets shall be lapped at sides and ends by at least one diamond mesh. End laps shall be made over supports and staggered. All laps between supports shall be tied every 6" with 18 gauge galvanized annealed tie wire.

# USG LATHING ACCESSORIES

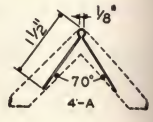
### USG CORNER BEADS

USG corner beads should be used on all external plaster angles to provide: (1) plaster protection, (2) true and straight lines at angles and (3) grounds for plastering.

*Lengths:* 8', 9', 10' and 12'. *Gauge of Steel:* 26 gauge galvanized steel.

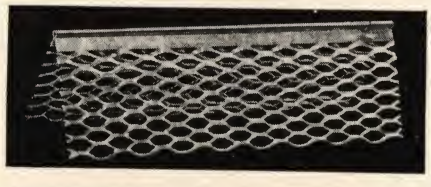
### 4-A FLEXIBLE CORNER BEAD

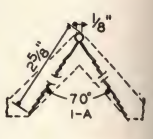
The general purpose corner bead. Economical and most generally used. By snipping flanges, this bead may be bent to any curved design (for archways, telephone niches, etc.). Made from 26 gauge galvanized steel.




### 1-A EXPANDED CORNER BEAD

Its wide expanded flanges are easily flexed. Preferred for irregular corners. Provides increased reinforcement close to nose of bead. Made from 26 gauge galvanized steel.






### 2-A SCALLOPED FLANGE CORNER BEAD

A perforated flange, rigid type bead with projecting scallops that provide good nailing for irregular corners. Made from 26 gauge galvanized steel.

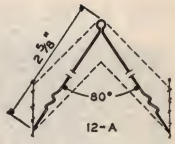
(See next page)

*Trademark Reg. U. S. Pat. Off.

# USG LATHING ACCESSORIES (Cont'd)

### 12-A WIDE FLANGE CORNER BEAD

Similar in size and shape to No. 1-A, but with perforated 2½" flanges. An exceptionally rigid bead. Made from 26 gauge galvanized steel.

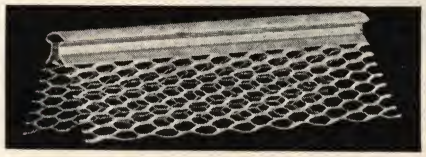


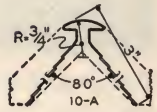

### 5-A BULL NOSE CORNER BEAD

A ¾" radius bull nose bead with short flange. Used for rounded corners. It is secured to corners with No. 9-A Clips attached to flanges. Made from 26 gauge galvanized steel.

### 10-A EXPANDED BULL NOSE CORNER BEAD

A bull nose bead similar to above, but with 2½" wide expanded flanges. Especially suitable on irregular corners. Made from 26 gauge galvanized steel. (24 gauge on special order.)






### 14-A BULL NOSE CORNER BEAD

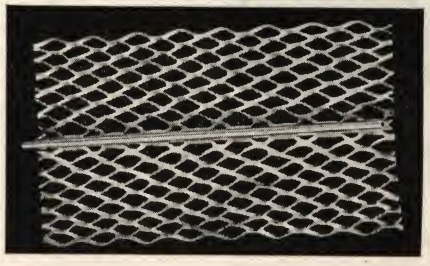
Similar to the No. 10-A above for the nose design, but with 2½" wide perforated flanges. Made from 26 gauge galvanized steel. (24 gauge on special order.)

### 9-A CORNER BEAD CLIPS

A 3" clip for attachment of short flange beads where nailing or tieing the flange to the corner construction is impractical. The "cut-outs" of the clip securely engage the flange of the bead with punched holes provided for nailing purposes. (not shown)

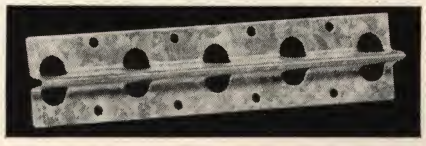
### 3-A EXPANDED BASE SCREED

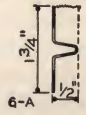
Similar to 6-A, but with 2½" flexible expanded flanges for added reinforcement or for attachment to uneven surfaces. Made in 10 foot lengths from 26 gauge galvanized steel.



### 6-A PLAIN BASE SCREED

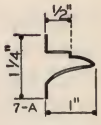
A flush type ½" ground (job shimmed for ¾" grounds), used at the juncture of differing finishes; as between plaster and terrazzo surfaces. Made in 10 foot lengths only from 26 gauge galvanized steel.





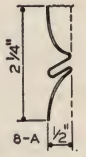

### 7-A CURVED POINT BASE SCREED

For use where base or wainscot is to project beyond the plastered surface. Made for ½" plaster ground and ½" projection. Length 10 feet—26 gauge galvanized steel.




### 8-A PICTURE MOULD

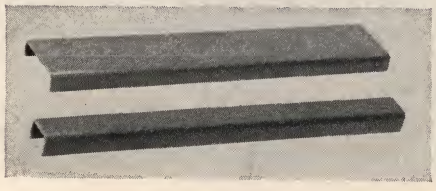
A concealed mould. Attached to lath and plastered flush to the notch opening. Grounds ½"—length 10 feet—26 gauge galvanized steel.




### LATHING CHANNELS

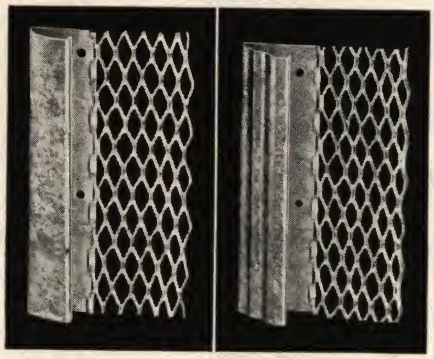
Strong, lightweight channel sections used for furring, suspended ceilings, partitions, ornamental lathing, etc. Sizes: ¾" or 1½" deep, 16′ or 20′ lengths, Weights: ¾", 308 lbs. per M. Lin. ft., 1½", 471 lbs. per M Lin. ft. Made of 16 gauge steel, black asphaltum painted.

(*See next page*)



# USG LATHING ACCESSORIES (Cont'd)

## NO. 4 AND NO. 6 METAL CASING

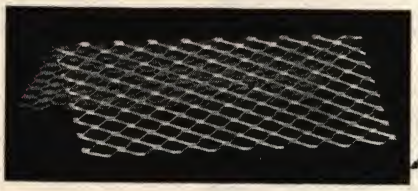


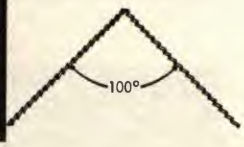
*No. 4—Quarter Round*

*No. 6—O. G.*

Used as a plaster stop and ground at window and door openings where this function is not otherwise provided. Two styles available, No. 4 Quarter Round, or No. 6 O.G. (Old Gothic). Lengths 7′, 8′ and 10′. Plaster grounds ¾″ standard; ½″ on order. Made from 24 gauge galvanized steel.

## USG CORNERITE AND STRIPLATH






Cornerite is a 4″ or 6″ wide strip of 2.5 lb. DIAMOND MESH lath, copper alloy painted, bent lengthwise in the center, to form a 100° angle, length 96″.

Striplath is a 3″ wide strip of 2.5 lb. DIAMOND MESH lath, copper alloy painted, 96″ long.

### Function and Utility

Cornerite should be used on all internal plaster angles as corner reinforcement where metal lath is not lapped or carried around corners; over non-ferrous lath nailed rigidly to supports; over corners of masonry constructions. (Cornerite is optional in Resilient, BRIDJOINT lathing system. If used it is secured to the lath, not the supports.)

Striplath is used as a plaster reinforcement over joints of non-metallic lathing bases. Used with perforated ROCK-LATH* plaster base for ceilings requiring a 1 hour fire rating.

## USG CEILING RUNNER

A specially designed steel angle for fastening to the ceiling in order to provide positive anchorage and alignment of ¾″ channels in either solid partition construction or exterior wall furring.

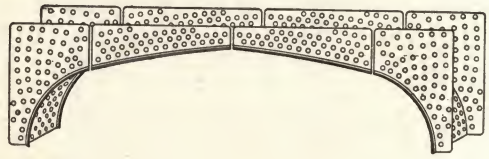
## USG GALVANIZED TIE WIRE

A pliable, annealed wire for tieing metal lath; 18 and 16 gauge coils. (8 gauge galvanized annealed coils available for hangers.)

## ATTACHMENT CLIPS

Special wire clips designed for attachment of Riblath to top or bottom flanges (1½″ to 4⅝″ widths) of steel joists.

## USG METAL ARCHES



### DESCRIPTION

USG Metal Arches are made of galvanized sheet metal, perforated for plaster keying. They are made in three styles: True Circle, Gothic and Elliptic, and in seven sizes. Many variations in size and shape may be obtained by combining different sections of different arches.

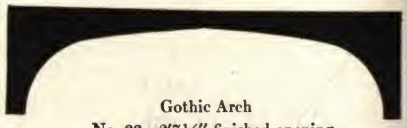
### FUNCTION AND UTILITY

USG Metal Arches are equally suitable for new work or remodeling. They provide a plastering base of symmetry and uniformity that is quick and easy to install.

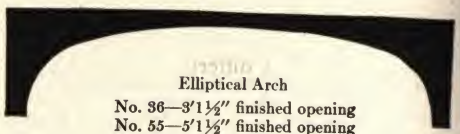
Metal Arches combine into one unit the plaster base, plaster grounds and corner bead otherwise required in making such arched openings. No special preparation of the rough opening is necessary. The metal arch sections fit perfectly over 2 x 4 studs and any type of lath, or over masonry of similar thickness. Special job conditions are easily handled.

**THREE STYLES**
**SEVEN SIZES**

True Circle Arch
No. 11—10″ radius
No. 22—15¾″ radius



Gothic Arch
No. 33—2′7½″ finished opening
No. 44—4′1½″ finished opening



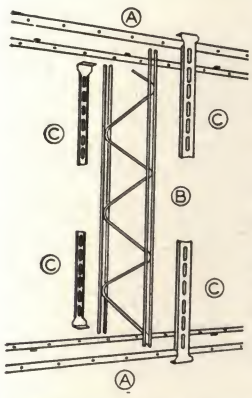
Elliptical Arch
No. 36—3′1½″ finished opening
No. 55—5′1½″ finished opening
No. 66—5′10½″ finished opening

## TABLE OF ERECTION DETAILS

| Style of Arch | Width of Finished Opening | Dimension from Arch Base to Header | Spacing between Studs or Bucks (Rough Opening) |
|---|---|---|---|
| No. 11 | 20″ | 10″ | 21½″ |
| No. 22 | 31½″ | 15¾″ | 33″ |
| No. 33 | 31½″ | 11⅜″ | 33″ |
| No. 36 | 37½″ | 11″ | 39″ |
| No. 44 | 49½″ | 12½″ | 51″ |
| No. 55 | 61½″ | 13″ | 63″ |
| No. 66 | 70½″ | 13″ | 72″ |

*Trademark Reg. U. S. Pat. Off.

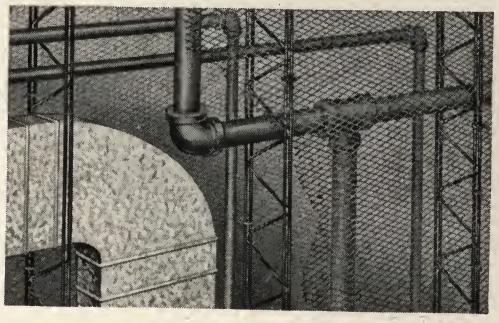
# USG TRUSSTEEL* STUDS




## DESCRIPTION

This is a truss design stud for the erection of hollow non-load bearing fireproof partitions. Outer chords and diagonal struts are constructed of round rods. As shown in the sketch, the component parts are (A) 24 gauge top and bottom runner tracks, (B) 7 gauge rod studs spot welded at all contact points, (C) attachment shoes for connecting the studs to the runners.

Sizes—Consult technical data below.



## FUNCTION AND UTILITY

*CONCEALS PIPES AND CONDUITS*—The "hollow stud" structure permits concealment of pipes, conduits, air ducts, etc., within the finished wall. Diagonal struts are easily cut to accommodate large ducts.

*LIGHT WEIGHT*—The finished plastered partition weighs 13 to 17 pounds per square foot of partition, generally less than other partitions of equal thickness.

*FIREPROOF*—The gypsum plaster over USG Metal Lath protects the studs from "heat distortion," giving a one hour fire rating.

*STRONG*—Strength of studs is derived from strategic use of metal in a truss design—not on bulk weight. Tests made by recognized authorities on panels of same size, indicated that TRUSSTEEL Studs withstood at least 30 per cent greater transverse loads before failure than 1½" steel channels similarly lathed and plastered.

*ADJUSTABLE HEIGHT*—Attachment shoes permit an upward adjustment up to 4" for varying ceiling heights.

*ECONOMICAL*, because—

(a) Material cost is moderate.

(b) Erection is speedy, only ordinary lather's tools required.

(c) Light weight generally permits partition location at any place without special structural framing.

## LIMITATIONS

1. USG TRUSSTEEL Studs are designed for non-load bearing partitions only.

2. Partition heights should not exceed the maximum heights in technical data table below.

3. Stud spacing is determined by the type of lath. See spacings in technical data.

## TECHNICAL DATA

| Stud Width | Finished (1) Wall Thickness | Maximum Partition Height | NATIONAL BUREAU OF STANDARDS FIRE RATINGS (2) | | Sound (5) Transmission Loss in Decibels |
|---|---|---|---|---|---|
| | | | (3) | (4) | |
| 3¼" | 4¾" | 16 Ft. | 1 hour | 2 hours | 36.9 |
| 4" | 5½" | 18 Ft. | 1 hour | 2 hours | 36.9 |
| 6" | 7½" | 20 Ft. | 1 hour | 2 hours | 36.9 |

Approximate plastered partition weight per square foot: 13 lbs. on ROCKLATH, 17 lbs. on Metal Lath.

Stud Lengths: 7′ 0″ to 20′ 0″ in increments of 3″.

Runner Tracks: 3¼", 4" and 6" widths by 8′ 2" long.

Notes:

1. Based on ¾" plaster thickness from face of stud. Mill work should be specified to fit these wall thicknesses.

2. Fire Ratings are as given for such partitions in National Bureau of Standards Report BMS-92.

3. Ratings are for ¾" thick gypsum plaster, sanded 1:2-1:2 applied over Metal Lath. Rating of plaster sanded 1:2-1:3 is 45 minutes for ¾" thickness and 1 hour for ⅞" thickness.

4. Ratings are for ⅞" thick neat gypsum plaster, or, 1" thick gypsum plaster sanded 1:½-1:½, applied over Metal Lath. Neat gypsum plaster 1" thick applied over Metal Lath is accorded a 2½ hour rating.

5. Sound Transmission Loss is as given in National Bureau of Standards Report BMS-17 for such partitions. Figures are for the average of 128 to 4086 cycles.

**RECOMMENDED STUD SPACING**

| Type of Lath | TRUSSTEEL Stud Spacing |
|---|---|
| 2.5 lb. Diamond Mesh Lath | 12 Inches |
| 3.4 lb. Diamond Mesh Lath | 16 Inches |
| 2.75 lb. ⅛" Riblath | 16 Inches |
| 3.4 lb. ⅛" Riblath | 19 Inches |
| 3.4 lb. ⅜" Riblath | 24 Inches |
| 4.0 lb. ⅜" Riblath | 24 Inches |
| Plain or Perforated ROCKLATH | 16 Inches |

**Trademark Reg. U. S. Pat. Off.*

# USG METAL LATH DATA

## TECHNICAL DATA

| Type of Lath | Weight per Square Yard | Type of Steel | Size Sheets | Maximum Allowable Spacings | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Vertical Supports | | | Horizontal Supports | |
| | | | | Wood | Metal | | Wood or Concrete | Metal |
| | | | | | Solid Partitions | Others (5) | | |
| Diamond Mesh | 2.5 lb. | Copper Alloy (1) | 27″x96″ | 16″ | 16″ | 12″ | (4) | (4) |
| Diamond Mesh | 3.4 lb. | Copper Alloy | 27″x96″ | 16″ | 16″ | 16″ | 16″ | 13½″ |
| Diamond Mesh | 3.4 lb. | Galvanized (2) | 27″x96″ | 16″ | 16″ | 16″ | 16″ | 13½″ |
| ⅛″ Z-Rib | 2.75 lb. | Copper Alloy | 27″x96″ | 16″ | 16″ | 16″ | 16″ | 12″ |
| ⅛″ Z-Rib | 3.4 lb. | Copper Alloy | 27″x96″ | 19″ | 24″ | 19″ | 19″ | 19″ |
| ⅜″ Rib | 3.4 lb. | Copper Alloy | 24″x96″ | 24″ | 24″ | 24″ | 24″ | 24″ |
| ⅜″ Rib | 4.0 lb. | Copper Alloy | 24″x96″ | 24″ | 24″ | 24″ | 24″ | 24″ |
| Stuccomesh (3) | 1.8 lb. | Copper Alloy | 48″x99″ | 16″ (3) | | | | |
| Stuccomesh | 3.6 lb. | Copper Alloy | 48″x99″ | 16″ (3) | | | | |
| ¾″ Rib Lath | | Copper Alloy | 10′&12′, 2′x8′ | See table for ¾″ Riblath, page 27. | | | | |

All metal lath (except galvanized) is painted with a rust-inhibitive black asphaltum paint.

Notes (1) Copper alloy lath contains from 0.2% to 0.25% pure copper.
(2) Galvanized lath is cut from galvanized sheets.
(3) Stuccomesh generally applied over exterior sheathing.
(4) Not recommended, except for fireproofing of steel shapes.
(5) Including vertical furring.

## FIRE TEST DATA
### Panel Type

| Construction | Type Base | Plaster and Aggregate | Thickness | Rating and Reference |
|---|---|---|---|---|
| | | **PARTITIONS** | | |
| Wood Frame | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:3 | ¾″ | 45 Minutes (1) |
| Wood Frame | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:2 | ¾″ | 1 Hour (1) |
| Wood Frame | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:3 | ⅞″ | 1 Hour (1) |
| Wood Frame | Expanded Metal Lath | Gypsum Wood Fiber | ¾″ | 1½ Hour (1) |
| Wood Frame | Expanded Metal Lath | Portland Cement-Sand, 1:2, 1:3 | ¾″ | 30 Minutes (1) |
| Wood Frame | Expanded Metal Lath | Portland Cement-Sand, 1:2, 1:3 | ⅞″ | 45 Minutes (1) |
| Wood Frame | Expanded Metal Lath | Portland Cement-Lime-Sand, 1:2:8, 1:2:10 | ¾″ | 30 Minutes (1) |
| Wood Frame | Expanded Metal Lath | Gypsum-Vermiculite 100:2½, 100:3½ | ¾″ | 1 Hour (1) |
| Solid | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:2 | 2″ | 1 Hour (3) |
| Solid | Expanded Metal Lath | Gypsum Wood Fiber | 2¼″ | 2 Hour (1) |
| TRUSSTEEL Studs | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:3 | ¾″ | 45 Minutes (1) |
| TRUSSTEEL Studs | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:2 | ¾″ | 1 Hour (1) |
| TRUSSTEEL Studs | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:3 | ⅞″ | 1 Hour (1) |
| TRUSSTEEL Studs | Expanded Metal Lath | Gypsum Wood Fiber | ⅞″ | 2 Hour (1) |
| | | **CEILINGS** | | |
| Wood Frame (A) | Expanded Metal Lath | Gypsum Sand, 1:2, 1:3 | ¾″ | 1 Hour (1) |
| Steel Joists (B) | Expanded Metal Lath | Gypsum-Sand, 1:2, 1:3 | ¾″ | 2 Hour (1) |
| Steel Joists (B) | Expanded Metal Lath | Gypsum-Vermiculite, 100:2, 100:3 | ¾″ | 3 Hour (1) |
| Steel Joists (B) | Expanded Metal Lath | Gypsum Wood Fiber | 1″ | 3 Hour (1) |
| Steel Joists (B) | Expanded Metal Lath | Gypsum-Vermiculite, 100:2, 100:3 | 1″ | 4 Hour (1) |
| Cellular Steel Floor (C) | Expanded Metal Lath | Gypsum Wood Fiber | 1″ | 4 Hour (1) |
| Cellular Steel Floor (C) | Expanded Metal Lath | Gypsum-Vermiculite, 100:2, 100:3 | 1″ | 4 Hour (1) |
| Suspended Channel (D) | Expanded Metal Lath | Gypsum-Vermiculite, 100:2½, 100:3½ | 1″ | 4 Hour (2) |
| | | **COLUMNS** | | |
| Steel | Expanded Metal Lath | Gypsum-Sand, 1:3, 1:3 | ¾″ | 1 Hour (1) |
| Steel (E) | Expanded Metal Lath | Gypsum-Sand, 1:3, 1:3 | ¾″ and ¾″ | 2½ Hour (1) |
| Steel (F) | Expanded Metal Lath | Gypsum-Vermiculite, 100:2½, 100:3½ | 1″ | 3 Hour (2) |

(1) National Bureau of Standards.
(2) Underwriters' Laboratories.
(3) Nationally recognized fire testing laboratory—name on request.
(A) Lath applied with 1½″ 11 gauge, 7/16″ head barbed roofing nails, 6″ o.c.
(B) 2½″ reinforced concrete slab on Riblath or 2″ precast gypsum tile above.
(C) Ceiling suspended 9″ or more below floor slab.
(D) Incombustible construction above.
(E) Two layers of metal lath with ¾″ air space between.
(F) Lath furred 1¼″ from column with space between lath and flanges filled with plaster.

## SOUND TRANSMISSION LOSS—PARTITIONS

| | |
|---|---|
| 2 x 4 wood studs; metal lath; scratch and brown coats of gypsum plaster, smooth white coat on both sides. | 39.2 decibels (1) |
| 3¼″ TRUSSTEEL Studs; metal lath; scratch and brown coats of gypsum plaster, smooth white coat on both sides. | 36.9 decibels (1) |
| 2″ solid metal lath and gypsum plaster smooth white coat on both sides. | 37.6 decibels (1) |

(1) National Bureau of Standards—average 128 to 4096 cycles.

# METAL LATH AND LATHING SPECIFICATIONS

*(Paragraphs A, B, and C are recommended as basic requirements for all metal lathing specifications. Paragraphs D-1, D-2, etc., apply to the erection of lath for various constructions and only those applicable to the job should be included.)*

### A. SCOPE

Unless otherwise indicated, all lathing and furring shall be of metal as herein described. (*Or enumerate the areas.*)

### B. MATERIALS

Metal lath shall be USG Metal Lath manufactured by United States Gypsum Company, made from copper alloy steel sheets and shall be given a protective coating of rust-inhibitive paint after fabrication.

Where galvanized metal lath is required, it shall be 3.4 Diamond Mesh lath.

The weight of metal lath shall be not less than that required by the current edition of The American Standards Association's "Standard Specifications for Gypsum Plastering," or the printed specifications of the manufacturer for the various spacings of supports.

Metal plastering accessories such as corner beads, base screeds, concealed picture moulds, metal casings, etc., shall be formed of galvanized steel sheets, not less than 26 gauge and manufactured by United States Gypsum Company.

Channels for furring shall be cold rolled steel channels having a protective coating of rust-inhibitive paint, manufactured by United States Gypsum Company. Channels shall not exceed the limitations of span as set forth in current issue of A.S.A. specifications or the manufacturer's printed limitations.

Metal studs shall be TRUSSTEEL studs, manufactured by United States Gypsum Company, formed with not less than 7 gauge wire and shall be given a protective coating of rust-inhibitive paint. Stud sizes shall be as indicated on the drawings.

Tie wire shall be 18 gauge soft annealed galvanized tie wire, unless otherwise indicated. Cornerite and Striplath shall be manufactured from 2.5 lb. Diamond Mesh lath, copper alloy, having a coating of rust-inhibitive paint and manufactured by United States Gypsum Company.

### C. ERECTION OF METAL LATH

Metal lath shall be applied with the long dimension of the sheet across the supports; Riblath with ribs against the supports.

The ends of all lath shall be lapped not less than 1″ and the laps shall occur over the supports.

The sides of Diamond Mesh Lath shall be lapped not less than ½″. The sides of Riblath shall be lapped by nesting outside ribs. Side laps shall be secured to every support unless otherwise specified, and shall be wire-tied between supports not to exceed 9″ intervals.

All metal lath shall be started at one support away from the corner and be bent into the corner and carried on to the abutting wall to avoid a joint in the corner; provided that where ⅜″ Riblath is used, it shall be butted into the corners and Cornerite shall be applied over the abutting lath and wired at 6″ intervals along each edge in corners; Cornerite shall be tie-wired along the edge only, not in the corner. All metal lath shall be placed so that the lower sheet overlaps the upper.

Corner beads, base screeds, picture moulds, etc., shall be positioned by securely wiring to the metal lath, at not less than 12″ intervals. Attachment to masonry or other solid construction shall be secured by nailing at intervals of not less than 12″. ½″ concrete stub nails shall be used for attachment to concrete. Wood grounds shall be set true to line to provide not less than ⅝″ thickness of plaster over the metal lath and securely wired or nailed into place.

## SUPPLEMENTARY SPECIFICATIONS FOR SPECIFIC APPLICATIONS

**D-1. Nailing to wood supports.** Metal lath shall be secured to framing at intervals not to exceed 6″ o.c. by one of the following methods:

For side walls, 4d common nails driven to ¾″ penetration and bent over to engage at least 3 strands of Diamond Mesh lath or a rib of Riblath; 1″ roof nails, 7/16″ head, driven home to engage at least 2 strands of Diamond Mesh or through the rib of Riblath; 1″ 14 gauge wire staples, driven home without crushing the lath strands and engaging at least 2 strands of Diamond Mesh lath or the rib of Riblath; except that ⅜″ Riblath shall be secured with nails or staples having sufficient length to engage the rib and provide a ¾″ minimum penetration.

Diamond Mesh and ⅛″ Riblath shall be secured to ceiling framing with 1½″ 11 gauge barb roofing nails with 7/16″ head, to engage at least 2 strands of Diamond Mesh or through the rib of ⅛″ Riblath. ⅜″ Riblath shall be secured with nails or staples that provide at least 1⅜″ penetration.

**D-2. Metal lath tied and nailed to joists.** (Recommended where undue vibration is expected and for additional safety.)

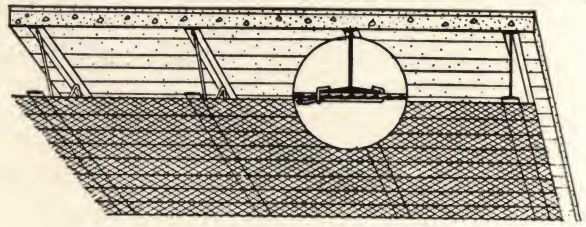
16d common nails spaced 24″ or 27″ o.c. depending upon width of lath, shall be driven horizontally through alternate joists at least 2″ above the lower edge; the point and head to project equally from the sides of joist.

Metal lath shall be secured to wood joists in the manner described for Nail-on work, but in addition, the metal lath side laps shall be secured to the nails with 2 strands of 18 gauge tie wire, providing at least 3 twists around the lath.

# METAL LATH AND LATHING SPECIFICATIONS

## SUPPLEMENTARY SPECIFICATIONS FOR SPECIFIC APPLICATIONS (cont.)

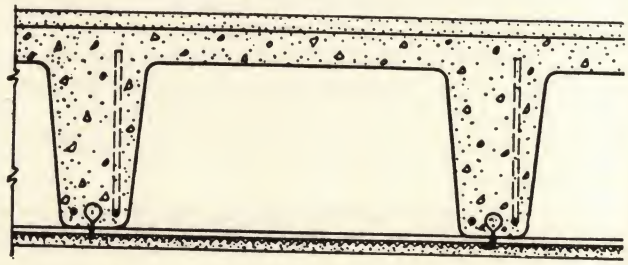
**D-3. Metal lath secured to steel joists.** Metal lath shall be secured to the lower chord of steel joist with 2 strands of 16 gauge tie wire or 4 strands of 18 gauge tie wire at intervals not to exceed 6″ o.c. or with special galvanized attachment clips. Free ends of tie wire shall be given at least 3 twists.



**D-4. Metal lath attached to rib concrete construction.** Hangers for attaching metal lath directly to underside of concrete ribs (approximately 25″ on centers) shall be placed in forms before concrete is poured and shall consist of hairpin, hook, loop hangers or other inserts and shall be provided with a loop or similar deformation for embedment in the concrete. Hangers shall be not less than 14 gauge galvanized annealed wire when twisted as in tie wire and not less than 10 gauge galvanized wire when struck over to support the lath. Spacing of hangers shall not exceed 5″ along bottom of ribs.

Where ribs are spaced more than 25″ on centers, 12 gauge galvanized wire hangers shall be placed through the center of the top surface of the forms at 36″ centers and looped to engage the concrete. These hangers shall support ¾″ cold rolled channels running parallel to and between ribs.

Metal lath shall be secured to the concrete ribs by twisting the 14 gauge hangers as for tie wire or by clinching 10 gauge hangers. For ribs spaced more than 25″ on centers, lath shall also be tied to channels with 2 strands of 18 gauge tie wire at intervals not to exceed 6″.

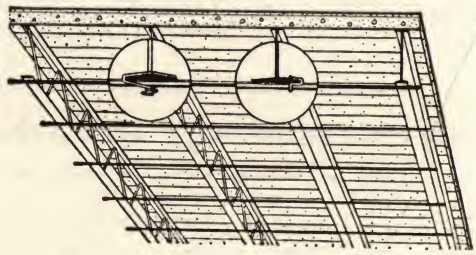


**D-5. Furred ceiling on wood joists.** 16d common nails, spaced to conform to spacing of furring members, shall be driven horizontally through each joist at least 2″ above the lower edge; the point and head to project equally from the side of joist.

Channel or rod furring shall be attached, at right angles to joists, flush against the bottom edges by securely wire-tieing the furring to each nail with not less than 4 strands of 18 gauge tie wire, saddle-tied. Metal lath shall be attached to the steel furring with tie wires at intervals not to exceed 6″.

**D-6. Furred ceiling on steel joists.** Furring members shall be ¾″ cold rolled channels and shall not exceed a spacing of (*select spacing from table, page 9*), and shall be erected at right angles to the steel joists. They shall be securely attached to the bottom chords with 2 strands 16 gauge or 4 strands 18 gauge galvanized wire or other approved attachment of equal strength.

Metal lath shall be attached to steel furring with wire ties at intervals not to exceed 6″.

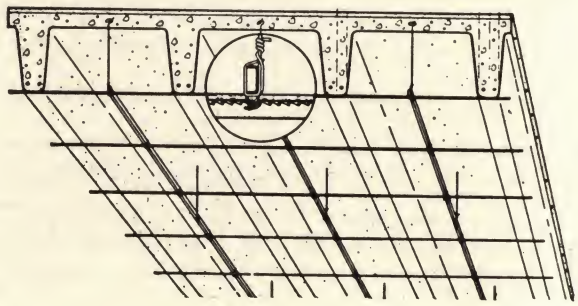


**D-7. Furred ceiling on rib concrete construction.** For concrete ribs centered at approximately 25″, channel runners shall be supported against bottom of ribs by hangers of two 14 gauge galvanized wires, or other hangers of equal strength with looped ends embedded at least 2″ within the concrete. Hangers shall be placed in forms before concrete is poured and spaced 36″ on centers, to engage ¾″ channels running parallel to the ribs. Hangers shall be securely saddle-tied or wrapped around the channels.

Cross furring members shall be saddle-tied to the channel runners with 2 strands of 16 gauge galvanized tie wire at each intersection.

Metal lath shall be secured to the cross furring with tie wires at intervals not to exceed 6″.

For concrete rib spacings greater than 25″ on centers hangers shall be two strands of 12 or one strand of 10 gauge galvanized wire supporting not more than 12 sq. ft.; two 11 gauge or one 8 gauge galvanized wire supporting not more than 16 sq. ft. of ceiling area.



# METAL LATH AND LATHING SPECIFICATIONS

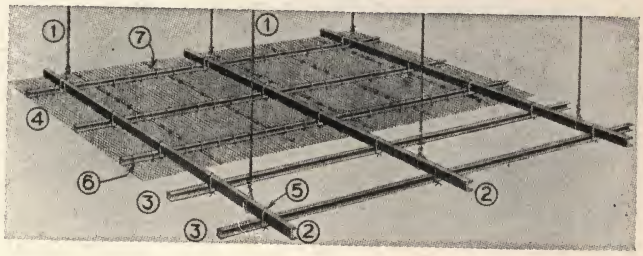
## SUPPLEMENTARY SPECIFICATIONS FOR SPECIFIC APPLICATIONS (Cont.)

**D-8. Suspended metal lath ceilings.** Hangers (1) shall be No. 8 gauge galvanized wire, 3/16" round mild steel rods or 1" x 3/16" flat mild steel straps; spaced not to exceed 4' both directions; and shall support no more than 16 square feet of ceiling area. The use of special inserts may be used subject to the architect's approval.

Hangers shall be of ample length. Hangers (without inserts) shall be secured to steel reinforcement in concrete with cinder aggregate and shall be either secured to steel reinforcement or looped and embedded 2 inches in concrete with other types of aggregates.

1½" cold rolled channels (2) shall be attached to wire or rod hangers by means of a saddle tie, or 3 twists of hanger around the channel. In lieu of wire or rod hangers, flat steel hangers shall be secured to runner channels and inserts with 3/8" diameter bolts, the punched hole to be not less than 3/8" from ends of hanger. Runner channels shall be placed true and level and properly positioned for the indicated ceiling height.

3/4" furring channels (3) shall be securely saddle-tied to the 1½" runner channels by 2 strands of 16 gauge tie wire (5) at each intersection.




Metal lath (4) shall be secured to the furring channels by tie wires (6) at intervals not to exceed 6". Side laps shall be wire-tied (7) between supports at intervals not exceeding 9". The spacing of the furring channels shall be (*select from table below*) and the weight of lath shall be (*select type and weight from table on page 6*).

Where hangers support more than 16 sq. ft. but not more than 25 sq. ft., use 1" x 3/16" flats spaced not more than 5' o.c. Main furring runners shall be not less than 2" hot rolled channels.

**D-9. Metal lath vertical furring.**

Attachments shall consist of nails driven securely into concrete or into masonry joints, or short pieces of 3/4" channels used as anchors driven into masonry joints. They shall be spaced not to exceed two feet on center, horizontally, and in accordance with the spacing of horizontal channels, vertically, and shall project a proper distance from the face of the wall to permit ties to be made.

Note: Where damp-proofing has been damaged, in installation of attachments, it shall be pointed with the same material before proceeding with the installation of the furring.

Horizontal members shall be not less than 3/4" cold-rolled channels. They shall be spaced not to exceed 4'6" on center with the lower and upper channels not more than 6" from the floor and ceiling, respectively, and not less than 1/4" from the face of the wall. They shall be securely tied to attachments with 3 strands of 18 gauge galvanized soft annealed wire, or equivalent devices.

Vertical members shall be not less than 3/4" cold-rolled channels. They shall be spaced (*specify according to table below*). They shall be securely saddle-tied to horizontal members with 3 loops of 18 gauge galvanized soft annealed wire, or equivalent devices, at each crossing, and securely anchored to the floor and ceiling construction. Where furring is a considerable distance from the face of the wall, channel braces to the wall shall be provided approximately 2 feet on center, and, where the height exceeds 16 feet, special truss bracing shall be provided to prevent concentration of load on the floor construction.

Note: Special devices which are the equivalent of, or better than, the nail or channel attachments may be used in lieu thereof.

### SIZE AND SPACING OF FURRING MEMBERS

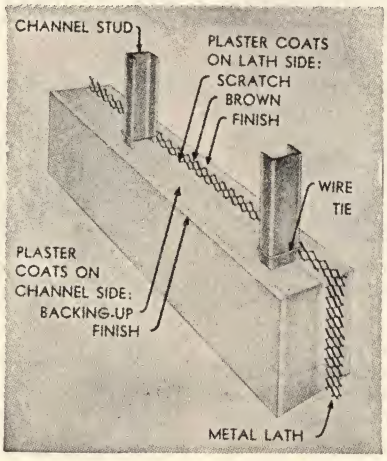
| Spacing of Main Runners (Also Steel Joists) | Size and Type of Cross Furring | Maximum Spacing of Furring |
|---|---|---|
| Up to 2 Feet | 1/4" Pencil Rods or 3/4" Channels | 12" |
| Up to 2 Feet | 3/8" Pencil Rods or 3/4" Channels | 19" |
| Up to 2 Ft. 6 In. | 3/8" Pencil Rods or 3/4" Channels | 12" |
| Up to 3 Feet | 3/4" Cold Rolled Channels | 24" |
| Up to 3 Ft. 6 In. | 3/4" Cold Rolled Channels | 19" |
| Up to 4 Feet | 3/4" Cold Rolled Channels | 16" |

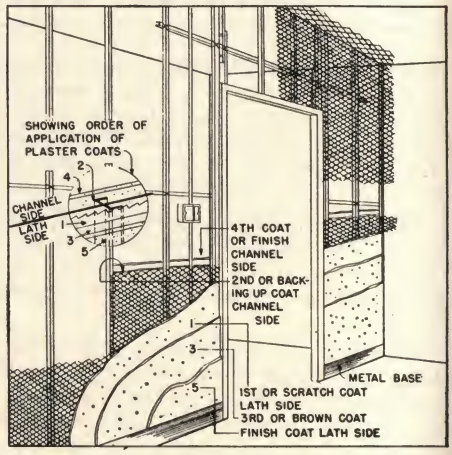
See Technical Data, page 6, for type and weight of lath.

# 2″ SOLID METAL LATH AND PLASTER PARTITION

## DESCRIPTION

A non-load bearing partition of metal lath, channels and plaster that finishes to an overall thickness of 2″.





SHOWING ORDER OF APPLICATION OF PLASTER COATS
CHANNEL SIDE
LATH SIDE
4TH COAT OR FINISH CHANNEL SIDE
2ND OR BACKING UP COAT CHANNEL SIDE
METAL BASE
1ST OR SCRATCH COAT LATH SIDE
3RD OR BROWN COAT
FINISH COAT LATH SIDE

## FUNCTION

*Space saving.* Saves 40 to 60% of the space occupied by conventional partitions. In every five lineal feet, a 2″ partition creates one extra square foot of useable space over a 4½″ partition.

*Light weight.* Eighteen pounds per partition square foot. Compared to more conventional partitions there is a dead load saving of as much as 30 per cent. Saves structural steel.

*Fire resistance.* Accorded a one hour fire rating by tests conducted by a nationally recognized fire testing laboratory (name on request). See table of fire ratings on page 6.

*Crack resistance.* Metal lath as a steel reinforcing, provides structural strength. Such partitions have performed remarkably well when subjected to earthquakes and explosions.

*Sound transmission rating.* 37.6 decibel transmission loss (average of 128 to 4096 cycles) as given in National Bureau of Standards Report BMS-17.

## TECHNICAL DATA

| Height of Partition | Thickness of Partition | Size of Channel Stud | Permissible Length of Partition |
|---|---|---|---|
| Up to 12′ | 2″ | ¾″ | No Limitation |
| Up to 14′ | 2″ | ¾″ | 24 Ft. |
| Up to 16′ | 2¼″ | ¾″ | 32 Ft. |
| Up to 18′ | 2½″ | ¾″ | 27 Ft. |
| Up to 20′ | 2¾″ | ¾″ | 30 Ft. |
| Up to 24′ | 3″ | 1½″ | 36 Ft. |
| Up to 30′ | 3½″ | 1½″ | 30 Ft. |

| Spacing of Studs | Lath Recommended |
|---|---|
| 16″ | 2.5 lb. Diamond Mesh |
| 16″ | 3.4 lb. Diamond Mesh |
| 16″ | 2.75 lb. ⅛″ Riblath |
| 24″ (1) | 3.4 lb. ⅛″ Riblath |
| 24″ | 3.4 lb. ⅜″ Riblath |
| 24″ | 4.0 lb. ⅜″ Riblath |

(1) This stud spacing permissible for partition heights not exceeding 16 feet. For greater heights, permanent horizontal stiffener channels must be secured to channel side of partition every 6 feet vertically, or spacings shall be reduced 25 percent.

## SPECIFICATIONS

### MATERIAL

Channel studding shall be not less than ¾″ cold rolled channels and metal lath shall be (*as selected from table above*), manufactured by United States Gypsum Company.

### LATHING

Contractor shall make accurate location layout of partitions according to plan. Channel studding shall be spaced (*as selected from table above*), and attached to the floor and ceiling with USG Stud Shoes and Ceiling Runner, or by other approved attachments or methods.

Where two-piece studs are necessary, they shall be spliced within 2 feet of ceiling by lapping not less than 8″, with flanges interlocked and securely wired in at least two places not less than 6″ nor more than 12″ apart.

A double channel stud, continuous from floor to ceiling, shall be used adjacent to and at each side of door bucks. Where metal door bucks are used, the double channel stud shall be wire-tied to bucks in a secure manner. Where wood bucks are used, two 8d nails shall be driven, in pairs, into the wood buck, at intervals of 2 feet, beginning 9″ above floor and the double channel studs securely wire-tied to the nails.

A horizontal reinforcing (⅛″ to 1¼″ flat iron or ⅜″ diameter rod) shall be attached 6″ or 8″ above top of door to the channel side and extend continuously past the double stud and just beyond the first single stud at each side. This reinforcement shall be saddle-tied to each vertical stud it crosses.

Also include GENERAL SPECIFICATIONS, B, C, AND D.

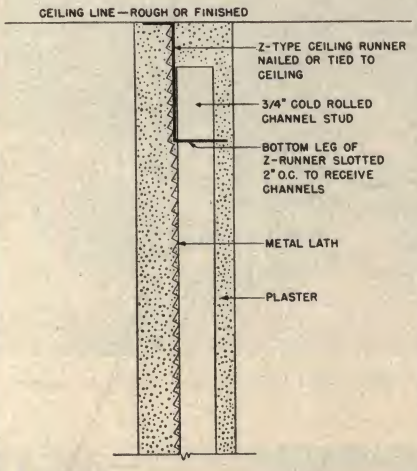
Lath sheets shall be secured to channel studs by a double strand of 18 gauge galvanized tie wire at 6″ intervals.

### PLASTERING (APPLICATION)

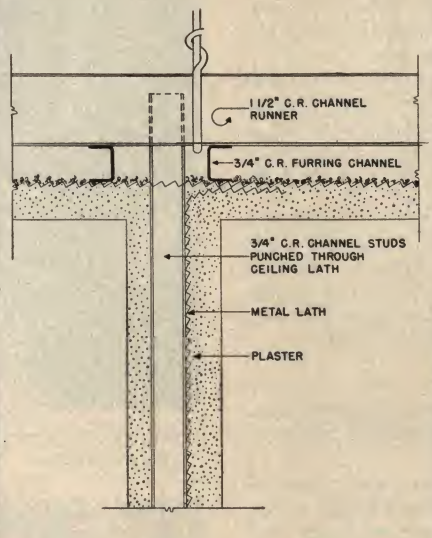
Plastering shall be of 5 coats to a total overall thickness of 2″. First, scratch coat on lath side; allow to set and dry. Second, back-up coat on channel side applied to full grounds in not less than two operations. Third, brown coat on lath side. Fourth and fifth, finish coat on each side.

Temporary bracing of studs shall be furnished on the channel side of the partition and maintained until the scratch coat on the lath side has set.

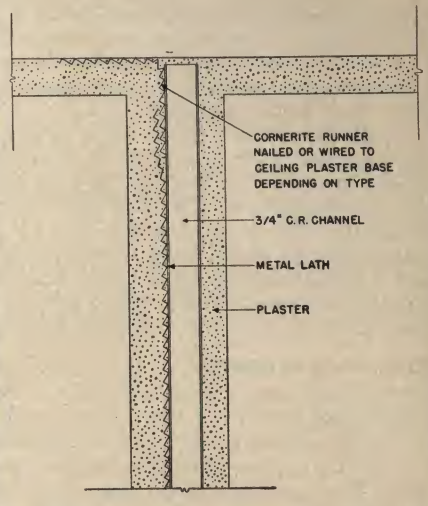
# 2" SOLID METAL LATH AND PLASTER PARTITION


CEILING LINE—ROUGH OR FINISHED
Z-TYPE CEILING RUNNER NAILED OR TIED TO CEILING
3/4" COLD ROLLED CHANNEL STUD
BOTTOM LEG OF Z-RUNNER SLOTTED 2" O.C. TO RECEIVE CHANNELS
METAL LATH
PLASTER

Z-TYPE CEILING RUNNER

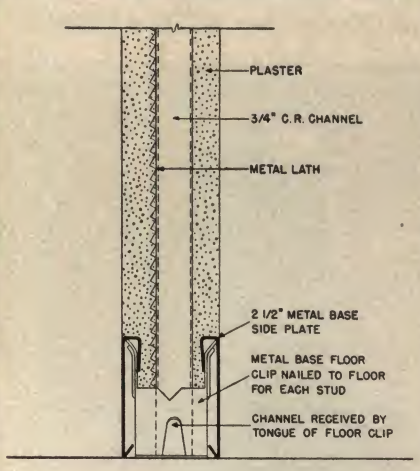



METAL LATH CEILING

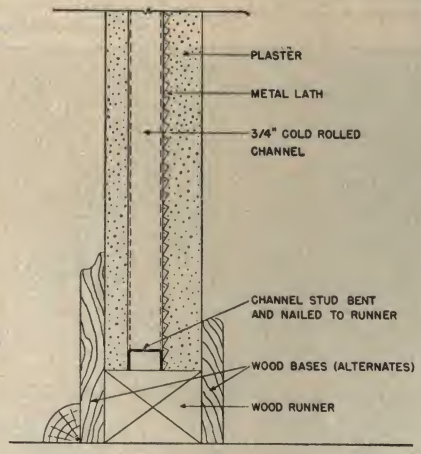



CORNERITE SHOE ON CONCRETE OR ROCKLATH CEILING

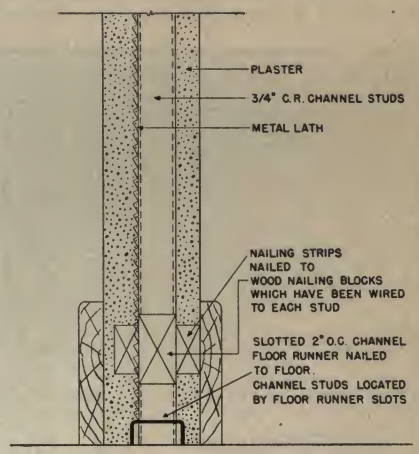
## CEILING ATTACHMENTS


PLASTER
3/4" C.R. CHANNEL
METAL LATH
2 1/2" METAL BASE SIDE PLATE
METAL BASE FLOOR CLIP NAILED TO FLOOR FOR EACH STUD
CHANNEL RECEIVED BY TONGUE OF FLOOR CLIP

FLUSH TYPE METAL BASE




WOOD RUNNER AND WOOD BASE


PLASTER
3/4" C.R. CHANNEL STUDS
METAL LATH
NAILING STRIPS NAILED TO WOOD NAILING BLOCKS WHICH HAVE BEEN WIRED TO EACH STUD
SLOTTED 2" O.C. CHANNEL FLOOR RUNNER NAILED TO FLOOR. CHANNEL STUDS LOCATED BY FLOOR RUNNER SLOTS

PUNCHED CHANNEL FLOOR RUNNER AND WOOD BASE

## FLOOR ATTACHMENTS



UNITED STATES GYPSUM

# USG METAL BASE

## FOR 2″ SOLID LATH AND PLASTER PARTITIONS

**DESCRIPTION**

A metal base system for partitions or walls composed of floor clips or masonry wall clips and steel side plates 2½″ high (18 or 20 gauge, primed with a rust inhibiting paint).

A friction-tension grip holds the side plates to the floor clips until the unit is grouted. The assembly of two side plates to one floor clip (double clip) provides a 2″ wide base assembly for 2″ solid plaster partition using either metal lath or ROCKLATH as the plaster base (see page 10 describing 2″ solid ROCKLATH partition, or page 22, this folder, describing 2″ solid metal lath partition). The assembly of only one side plate to a single type clip provides a base unit for either a single faced partition or for wall furring. A base unit for masonry walls that are to be plastered, such as PYROBAR,* is provided by attaching the masonry wall clip to one piece of side plate and then nailing or tieing through the clip into the masonry wall.

**FUNCTION AND UTILITY**

USG Metal Base is used to produce in one economical unit, a flush type steel base for partitions or other walls; a means of partition alignment; and a plaster ground.

Its design permits installation on any type of rough or finished floor. The ears of the floor clips engage the top flange of the side plates, permitting the side plates to independently and automatically adjust to uneven and irregular floors.

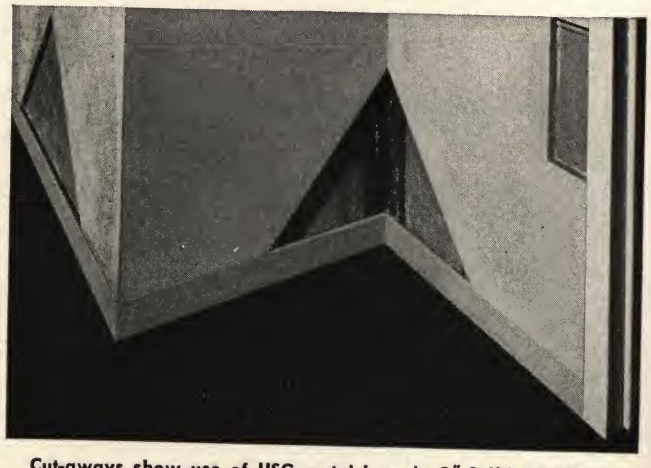
The assembled metal base unit for 2″ solid partitions must be solidly grouted with a plaster and sand grout. For 2″ solid ROCKLATH and plaster partitions a V-shaped groove must be made in the grouted base unit before the grout hardens. This groove centers the ROCKLATH before plastering. For 2″ solid metal lath and plaster partitions the base unit is grouted *after* the channel studs have been erected and *either before or after* the metal lath has been wired to the studs.

The side plates can be easily bent to form corners by notching the flanges. Side plates can be made continuous from one type of wall construction to another (e.g. From interior 2″ solid partitions to exterior furred walls); ends of side plates are butted and internally spliced to make these continuous runs.

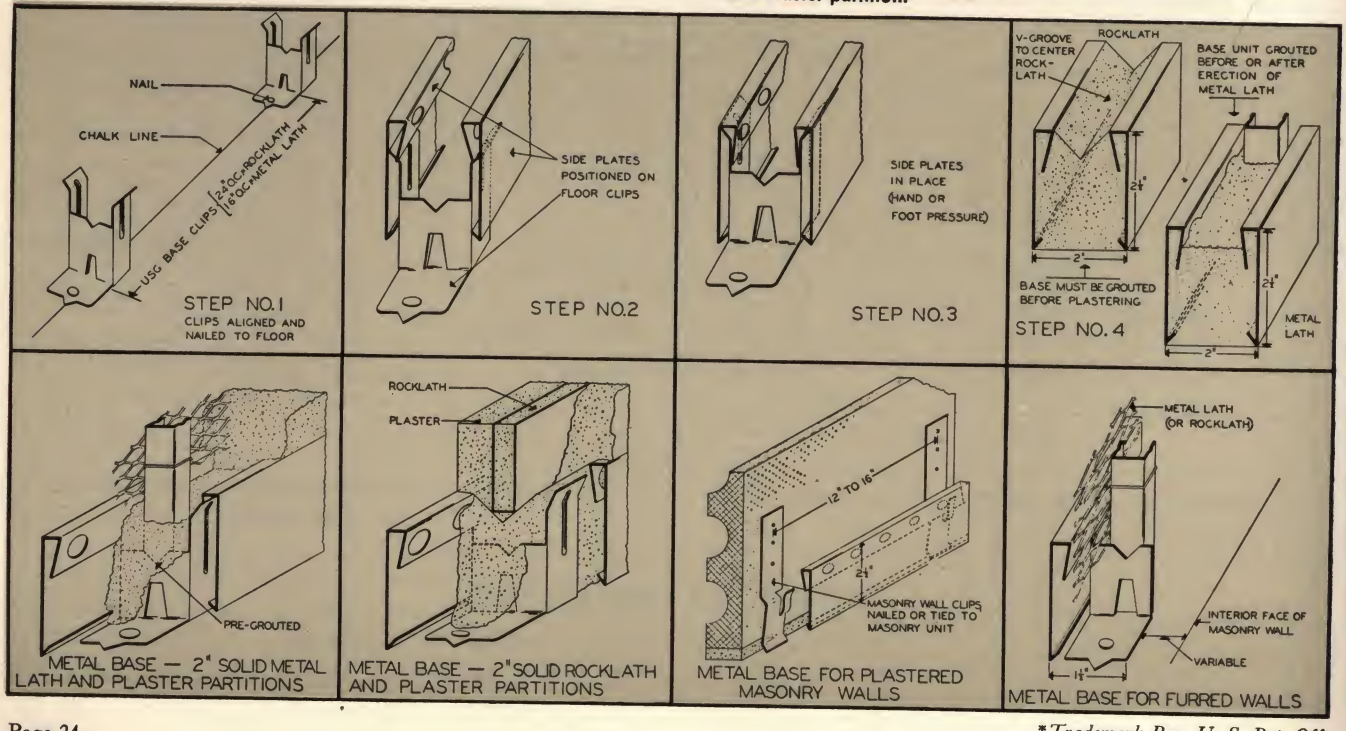
After the partition or wall has been plastered, the external faces of the side plates are exposed.

This type of base adds no combustible materials to the construction and affords protection to the base of the partition.

**Channel Studs erected, USG metal base grouted; ready for metal lath and plaster.**



**Cut-aways show use of USG metal base in 2″ Solid ROCKLATH and Plaster partition.**


NAIL
CHALK LINE
USG BASE CLIPS
STEP NO.1
CLIPS ALIGNED AND NAILED TO FLOOR
SIDE PLATES POSITIONED ON FLOOR CLIPS
STEP NO.2
SIDE PLATES IN PLACE (HAND OR FOOT PRESSURE)
STEP NO.3
V-GROOVE TO CENTER ROCK-LATH
ROCKLATH
BASE UNIT GROUTED BEFORE OR AFTER ERECTION OF METAL LATH
BASE MUST BE GROUTED BEFORE PLASTERING
STEP NO.4
METAL LATH
PRE-GROUTED
METAL BASE — 2″ SOLID METAL LATH AND PLASTER PARTITIONS
ROCKLATH
PLASTER
METAL BASE — 2″ SOLID ROCKLATH AND PLASTER PARTITIONS
MASONRY WALL CLIPS NAILED OR TIED TO MASONRY UNIT
METAL BASE FOR PLASTERED MASONRY WALLS
METAL LATH (OR ROCKLATH)
INTERIOR FACE OF MASONRY WALL
VARIABLE
METAL BASE FOR FURRED WALLS



*Trademark Reg. U. S. Pat. Off.

# METAL LATH RESILIENT PLASTERING SYSTEM

## DESCRIPTION

A system composed of metal lath, steel furring members and spring clips that provides a non-rigid or floating attachment of plastered surfaces to structural members.

## FUNCTION AND UTILITY

1. Provides greatly increased protection against plaster cracking due to structural movement.
2. The system assures all the advantages of metal lath construction such as adequate grounds, flexibility and absence of streaking.
3. The resilient character of the clip provides a considerable reduction in the transmission of sound through walls or ceilings.
4. Adaptable to wood supports, suspended ceilings, hollow partitions and masonry or concrete surfaces.

## SPECIFICATIONS

### Scope

The USG Metal Lath Resilient System shall be provided where shown on plans or indicated in specifications.

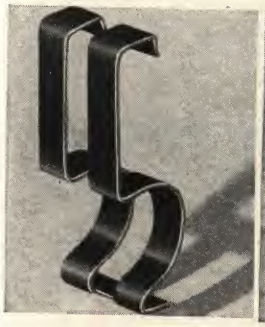
**Lathing Materials**—Lathing materials shall be USG Metal Lath and USG cold rolled channels.

USG resilient clips shall be:

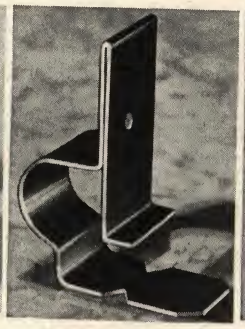
1. No. 100 for suspended ceilings, spacing of furring channels not to exceed 16″ center to center.
2. No. 200 for wood joists; spaced 12″ along joists and attached with 4d common nails. Wire a ¼″ pencil rod to the inside of tongue on the clip.
3. No. 200 for wood studs; spaced 16″ along studs, then follow procedure as for wood joists.
4. For wood furring strips where face nailing is required, proceed same as for wood studs, except substitute No. 300 Resilient Clip for No. 200. Do not use No. 300 for ceilings.
5. For use on TRUSSTEEL Studs use No. 400 Resilient Clips spaced 16″ along stud. Wire a ¼″ pencil rod into the notch on the outside flange of the clip.
6. For masonry walls and concrete ceilings, use No. 500 Resilient Clip. Attach clip to gypsum tile with 2″ staples. Attach to brick or clay tile with 10d cut nails. Attach to concrete ceiling with 9 gauge wire placed in position before concrete is poured, wire extending at least 1½″ below concrete surface. Three-quarter-inch USG Cold Rolled Channels shall be wired to the inside of the tongues of the clips with the webs of the channels away from the lath.

Spacings of No. 500 Clips shall be as follows:

| SPACING OF FURRING CHANNELS | SPACING OF No. 500 CLIPS |
|---|---|
| 12″ | 24″ |
| 16″ | 18″ |
| 19″ | 15″ |
| 24″ | 12″ |



Resilient Clip No. 100



Resilient Clip No. 200

Resilient Clip No. 300

Resilient Clip No. 400

Resilient Clip No. 500

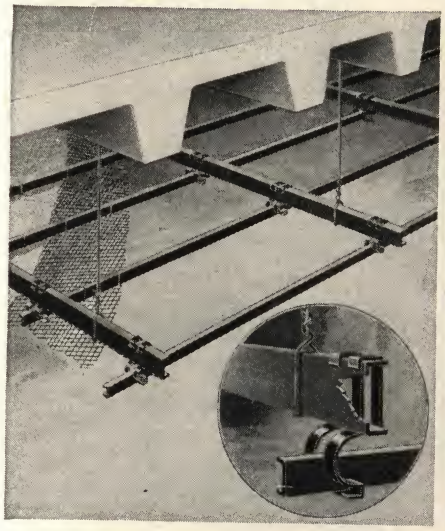


Figure 1
SUSPENDED CEILING. Showing application of No. 100 Clip for suspended ceiling construction. The clip provides resilient attachment of furring channel to runner channel by replacing use of the tie wire. Easy to erect.

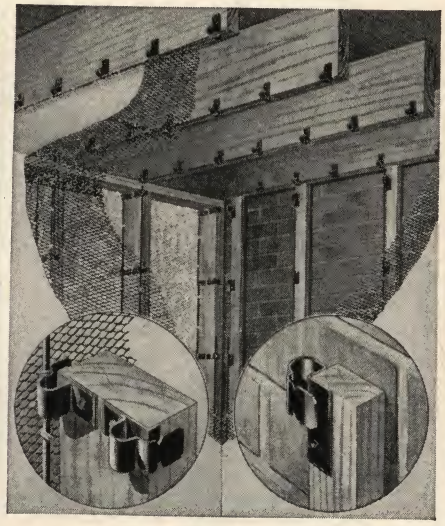


Figure 2
WOOD FRAME CONSTRUCTION. Showing application of No. 200 Clip on wood studs and joists and No. 300 Clip on wood furring on masonry walls. Clips provide resilient attachment of metal lath and protect plaster finish.

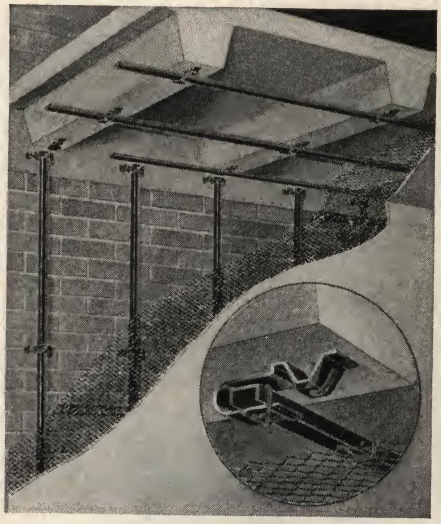
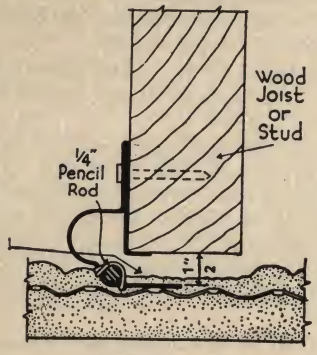


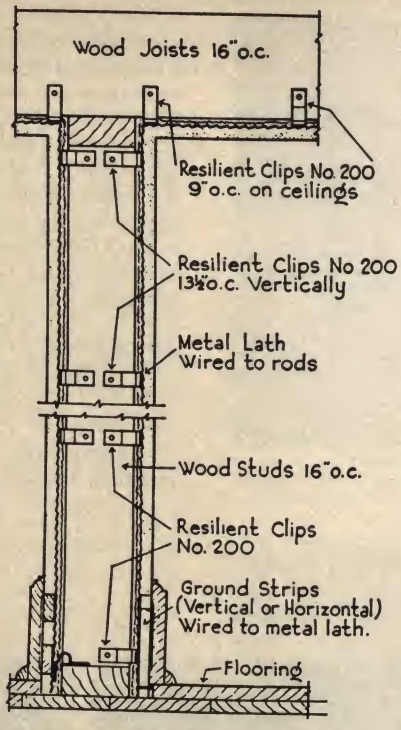
Figure 3
MASONRY SURFACES. Showing use of No. 500 Clip on ceiling under concrete joist and on masonry walls. Clip is also used on other masonry surfaces. Provides furring and resilient attachment of metal lath.

126
3

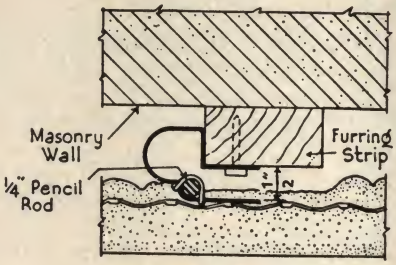
# METAL LATH RESILIENT PLASTERING SYSTEM



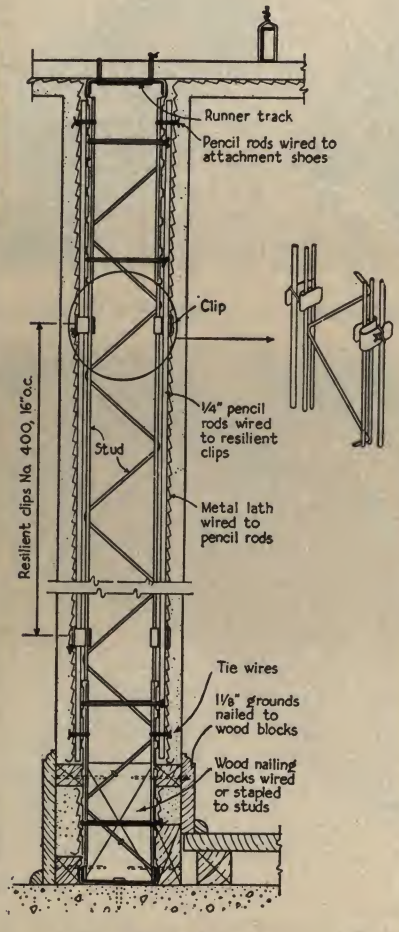

CLIP No. 200


Wood Joists 16"o.c.
Resilient Clips No. 200 9"o.c. on ceilings
Resilient Clips No 200 13½o.c. Vertically
Metal Lath Wired to rods
Wood Studs 16"o.c.
Resilient Clips No. 200
Ground Strips (Vertical or Horizontal) Wired to metal lath.
Flooring

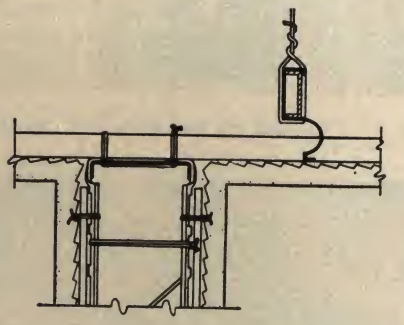
WOOD CONSTRUCTION

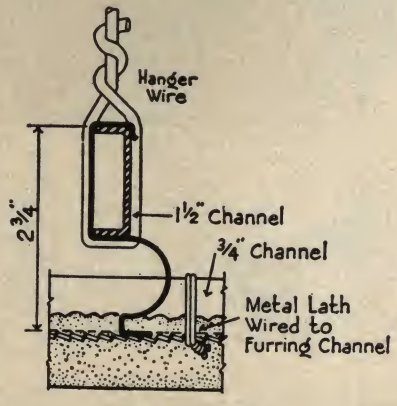



CLIP No. 300
For Wood Furring on Masonry Construction

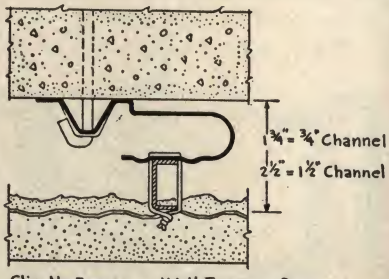

Runner track
Pencil rods wired to attachment shoes
Clip
1/4" pencil rods wired to resilient clips
Stud
Resilient clips No. 400, 16"o.c.
Metal lath wired to pencil rods
Tie wires
1⅛" grounds nailed to wood blocks
Wood nailing blocks wired or stapled to studs

CLIP No. 400
TRUSSTEEL STUD PARTITION

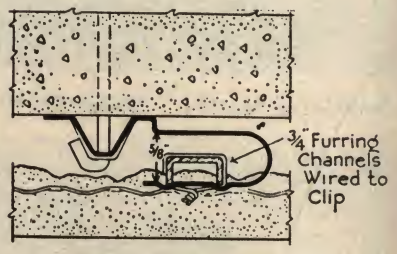




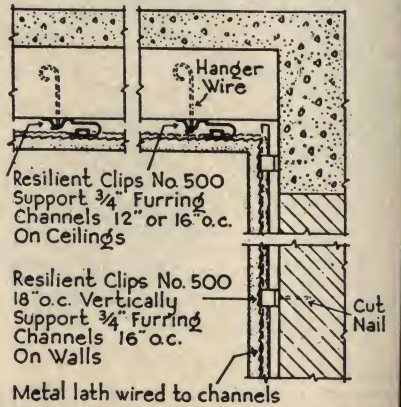

CLIP No. 100
For Suspended Ceilings




Clip No. 500 as a Wall Furring Device




CLIP No. 500


Hanger Wire
Resilient Clips No. 500 Support ¾" Furring Channels 12" or 16"o.c. On Ceilings
Resilient Clips No. 500 18"o.c. Vertically Support ¾" Furring Channels 16"o.c. On Walls
Cut Nail
Metal lath wired to channels

MASONRY CONSTRUCTION

# USG METAL LATH

## 3/8" AND 3/4" RIBLATH FOR CONCRETE SLAB REINFORCING

These heavy types of expanded metal lath are recommended for use as a combined form and reinforcing for light weight short span concrete slabs. The spacing of beams, the thickness of the slab and the safe load required will determine whether 3/8" or 3/4" Riblath shall be used. Consult data below.

### LOADING TABLES FOR 3/8" RIBLATH

| Thickness of Slab Above Mesh | Wt. of Concrete (Lbs. Per Sq. Ft.) | Wt. of Lath (Lbs. Per Sq. Yd.) | SAFE SUPERIMPOSED LOADS (Lbs. Per Sq. Ft.) SPAN IN INCHES | | | |
|---|---|---|---|---|---|---|
| | | | 12 | 16 | 19 | 24 |
| 2" | 24 | 3.4 | 950 | 536 | 380 | 238 |
| 2" | 24 | 4.0 | 1090 | 613 | 433 | 271 |
| 2½" | 30 | 3.4 | 1200 | 675 | 479 | 300 |
| 2½" | 30 | 4.0 | 1360 | 766 | 544 | 340 |
| 3" | 36 | 3.4 | 1450 | 815 | 578 | 362 |
| 3" | 36 | 4.0 | 1650 | 930 | 625 | 412 |

### LOADING TABLES FOR 3/4" RIBLATH

| Thickness of Slab Above Mesh | Wt. of Concrete (Lbs. Per Sq. Ft.) | Wt. of Lath (Lbs. Per Sq. Ft.) | Max. Span for Cent. Wet Concrete | SAFE SUPERIMPOSED LOADS (Lbs. Per Sq. Ft.) SPAN IN FEET | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 3 | 4 | 5 | 6 | 7 | 8 |
| 2" | 24 | .60 | 3′ 3″ | 413 | 220 | 130 | 81 | 51 | 32 |
| | | .75 | 3′ 7″ | 516 | 277 | 167 | 107 | 70 | 47 |
| 2½" | 30 | .60 | 2′ 11″ | 536 | 286 | 170 | 107 | 69 | 44 |
| | | .75 | 3′ 3″ | 669 | 361 | 218 | 140 | 93 | 63 |
| 3" | 36 | .60 | 2′ 8″ | | 353 | 211 | 133 | 87 | 57 |
| | | .75 | 2′ 11″ | | 445 | 270 | 174 | 117 | 80 |
| 3½" | 42 | .60 | 2′ 5″ | | 420 | 251 | 160 | 105 | 69 |
| | | .75 | 2′ 9″ | | 530 | 322 | 209 | 141 | 96 |
| 4" | 48 | .60 | 2′ 3″ | | 487 | 292 | 187 | 123 | 81 |
| | | .75 | 2′ 6″ | | 616 | 374 | 243 | 164 | 113 |

### SPECIFICATIONS

Metal lath for concrete reinforcing over steel beams shall be USG (3/8") (3/4") Riblath as supplied by United States Gypsum Company.

Riblath sheets shall be placed over and across the steel beams with the rib upward. Edge ribs of adjacent sheets shall occur over beams and shall lap at least one inch. Lath sheets shall be attached to flange of beam with special wire attachment clips, or other approved devices.

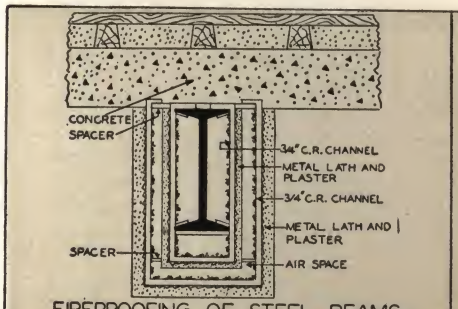
## BEAM AND COLUMN FIREPROOFING SPECIFICATIONS

Metal lath shall be of 2.5 lb. copper alloy Diamond Mesh lath, manufactured by United States Gypsum Company.

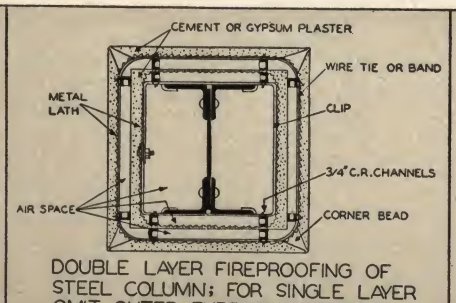
Framework to the contour and size shown on drawings shall be constructed of 3/4" cold rolled channels, or of 3/16" x 1" mild steel flats, or 1/4" round mild steel rods, or of combinations of each as approved by the architect. In no case shall the spacing of any steel bracket member exceed 12 inches unless they are cross-furred with 3/4" channels, in which case brackets shall not exceed 3′ o.c.

Wire tieing of brackets to structural members shall be of not less than 14 gauge galvanized wire, using saddle tie, or of 6 strands of 18 gauge galvanized tie wire. Rods may be tied to brackets with 18 gauge galvanized tie wire.

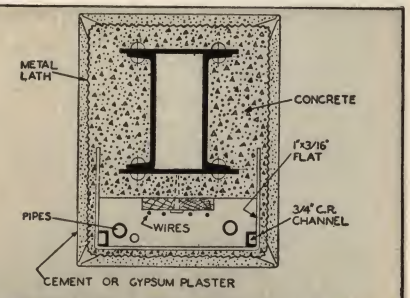
Diamond Mesh metal lath shall be shaped to approximate contour and attached to the framework with 18 gauge galvanized tie wire at 6" intervals, and at closer intervals where necessary to hold the lath in place.




FIREPROOFING OF STEEL BEAMS UNDER CONCRETE FLOORS.




DOUBLE LAYER FIREPROOFING OF STEEL COLUMN; FOR SINGLE LAYER OMIT OUTER FURRING CHANNELS, LATH, AND PLASTER.




PROTECTION OF METAL COLUMN WITH PROVISION FOR PIPE CHASE

*(For fire resistance ratings of above detailed constructions, refer to page 39, National Bureau of Standards report BMS-92.)*

# PYROBAR* PARTITION TILE

## DESCRIPTION

PYROBAR is a precast gypsum partition, or furring tile. It is made in various thicknesses, both solid and hollow, with indented surfaces to receive plaster.

*Sizes*—see technical data below.

Complies with ASTM Designation C52-41 and Federal Specification SS-T-316.

## FUNCTION & UTILITY

*FIREPROOF*—gypsum is incombustible and will not communicate high temperatures until completely calcined, a very slow process. Fire resistance ratings shown in technical data below.

*LIGHT WEIGHT*—saves structural steel—generally 30% to 50% lighter than other masonry partitions of like thickness. Unit weights shown in technical data below.

*PLASTER BOND*—Authoritative tests show that gypsum plaster bonds to PYROBAR Partition Tile with factor of safety of 173.

*SAVES PLASTER*—the large size, machine moulded units lay accurately to a straight line. Grounds are ½" instead of ⅝" or ¾" for other masonry partitions.

*RESISTANT TO SOUND TRANSMISSION*—see technical data below.

*LOW IN COST BECAUSE:*

(a) Material cost is low.

(b) The large units (2½ sq. ft. surface area) lay into wall fast, thus reducing labor costs.

(c) Lightness in weight reduces labor costs.

(d) Fewer joints, saves mortar up to 40%.

(e) Ease of cutting reduces waste, and lowers cost of alterations or remodeling.

(f) Requires 20% less plaster than masonry units requiring ⅝" grounds.

## LIMITATIONS OF USE

**1.** PYROBAR, although having a considerably higher compression strength than 75 lbs. per sq. inch gross area as required by ASTM Designation C-52-41, is designed for non load-bearing partitions and should not be used for load bearing construction.

**2.** Portland cement and lime mortars do not bond adequately with PYROBAR and should not be used for erecting PYROBAR. Use RED TOP* Gypsum Cement Plaster for plastering and RED TOP Partition Tile Cement for mortar. See specifications, page 30.

**3.** For the reason given above, portland cement or lime plasters should not be used over PYROBAR. Before applying portland cement bedding for ceramic tile, metal lath shall be nailed to PYROBAR. Alternately, other types of masonry, such as structural clay tile may be used as backing for ceramic tile.

**4.** PYROBAR should not be used as a base, or starter course, where excessive water or moisture is expected. Use clay tile or cement block as a starter course 12" high.

## TECHNICAL DATA FOR GYPSUM PYROBAR PARTITION TILE

| SIZE OF PYROBAR PARTITION TILE | Limiting Partition Height | Weight per Sq. Ft. | | Partition Tile Cement Required Per M Sq. Ft. Tile | Avg. Sound Transmission Loss in Decibels Plaster 2 Sides | Underwriters' Laboratory Fire Ratings |
|---|---|---|---|---|---|---|
| | | Partition Weight No Plaster | Partition Weight (1) Plastered | | | |
| 2" x 12" x 30" Solid | 10 ft. | 11.5 lbs. | 20.5 lbs. | 400 lbs. | | 1 hr. (no plaster) |
| 3" x 12" x 30" Hollow | 13 ft. | 12.0 lbs. | 21.0 lbs. | 560 lbs. | 38.1 Db. (2) | 2 hrs. (Plas. 2 sides) |
| 4" x 12" x 30" Hollow | 17 ft. | 15.5 lbs. | 24.5 lbs. | 760 lbs. | | 3 hrs. (Plas. 2 sides) |
| 6" x 12" x 30" Hollow | 30 ft. | 22.0 lbs. | 31.0 lbs. | 1120 lbs. | | 5 hrs. (Plas. 2 sides) (3) |

(1) Plastered partition weights include plaster on both sides of solid and hollow tile.

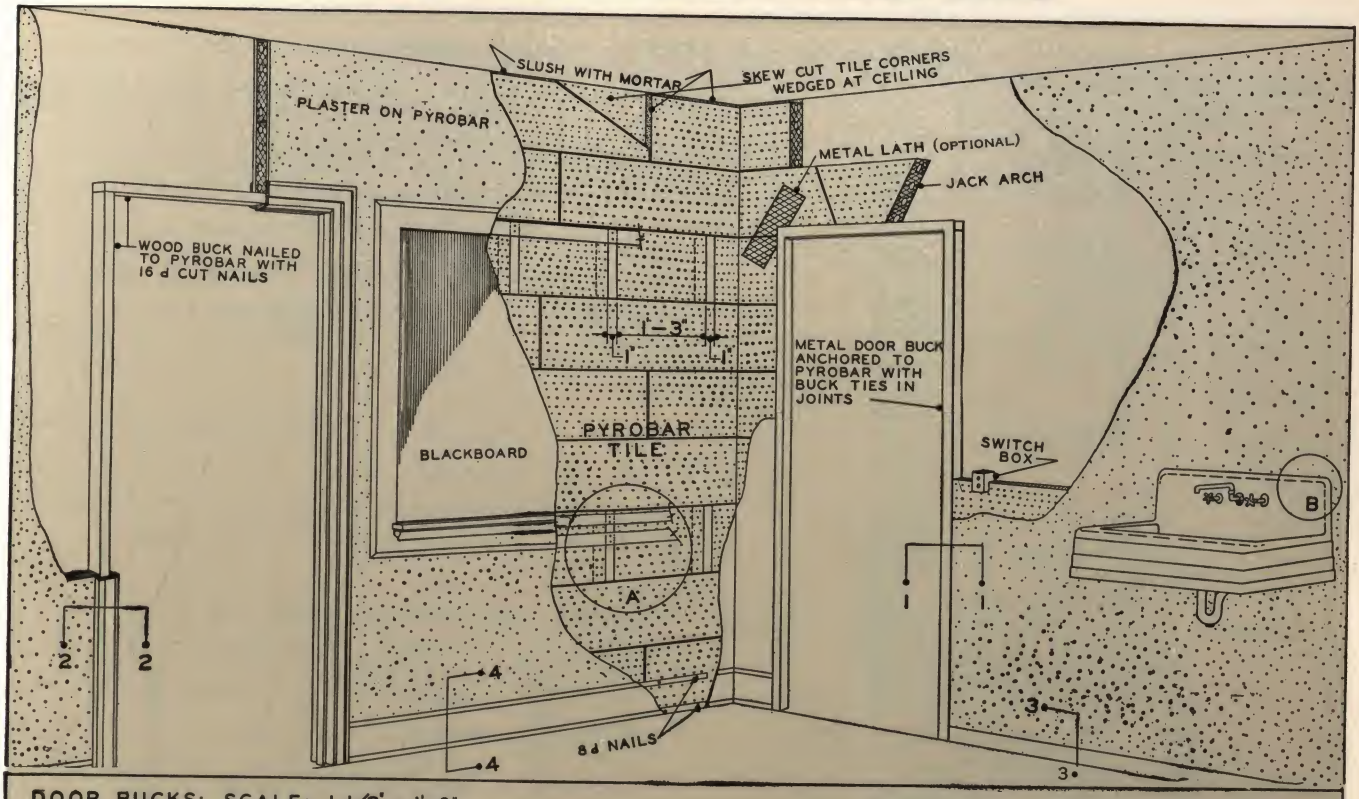
(2) When furred, one side only, with USG* No. 500 Resilient Clips supporting metal lath and plaster (other side plastered direct), average transmission loss is 52.7 decibels. See BMS Report 17, National Bureau of Standards.

(3) Calculated.

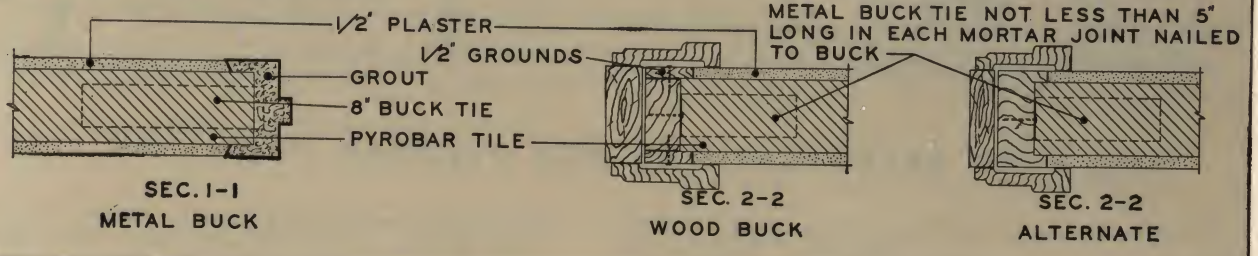


*Trademarks Reg. U. S. Pat. Off.

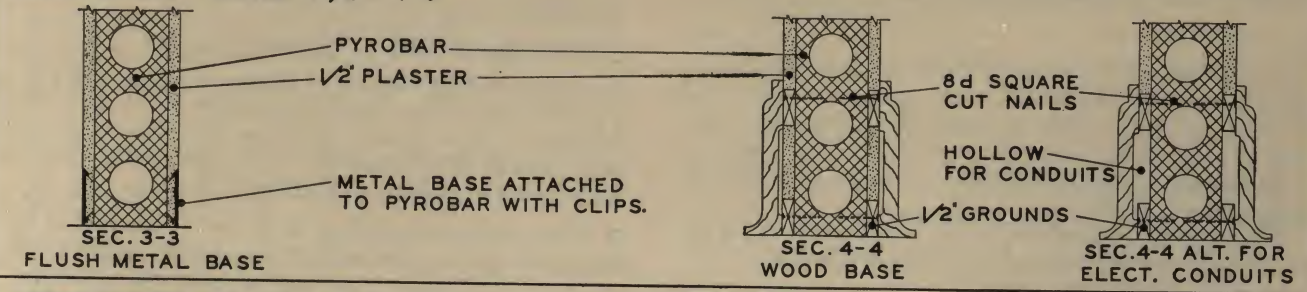
# PYROBAR PARTITION TILE



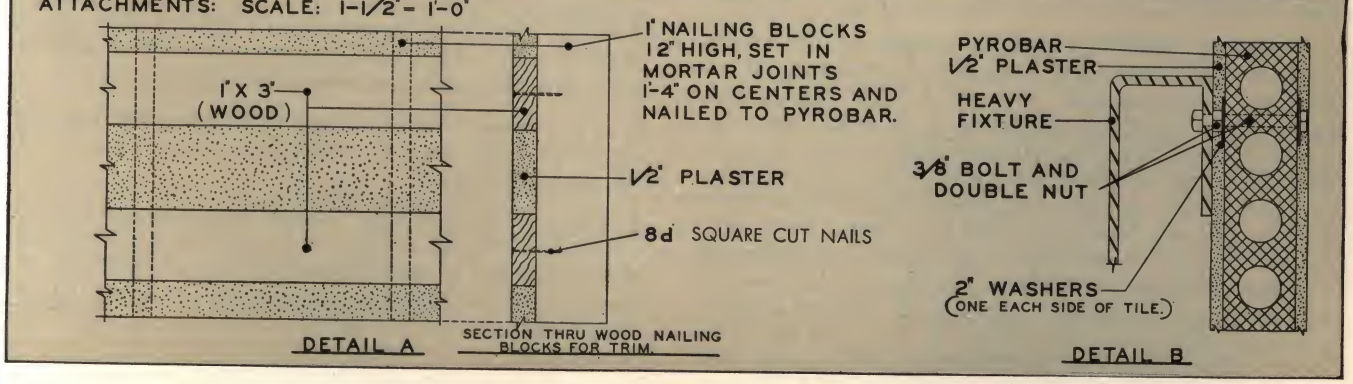

DOOR BUCKS: SCALE: 1-1/2" - 1'-0"



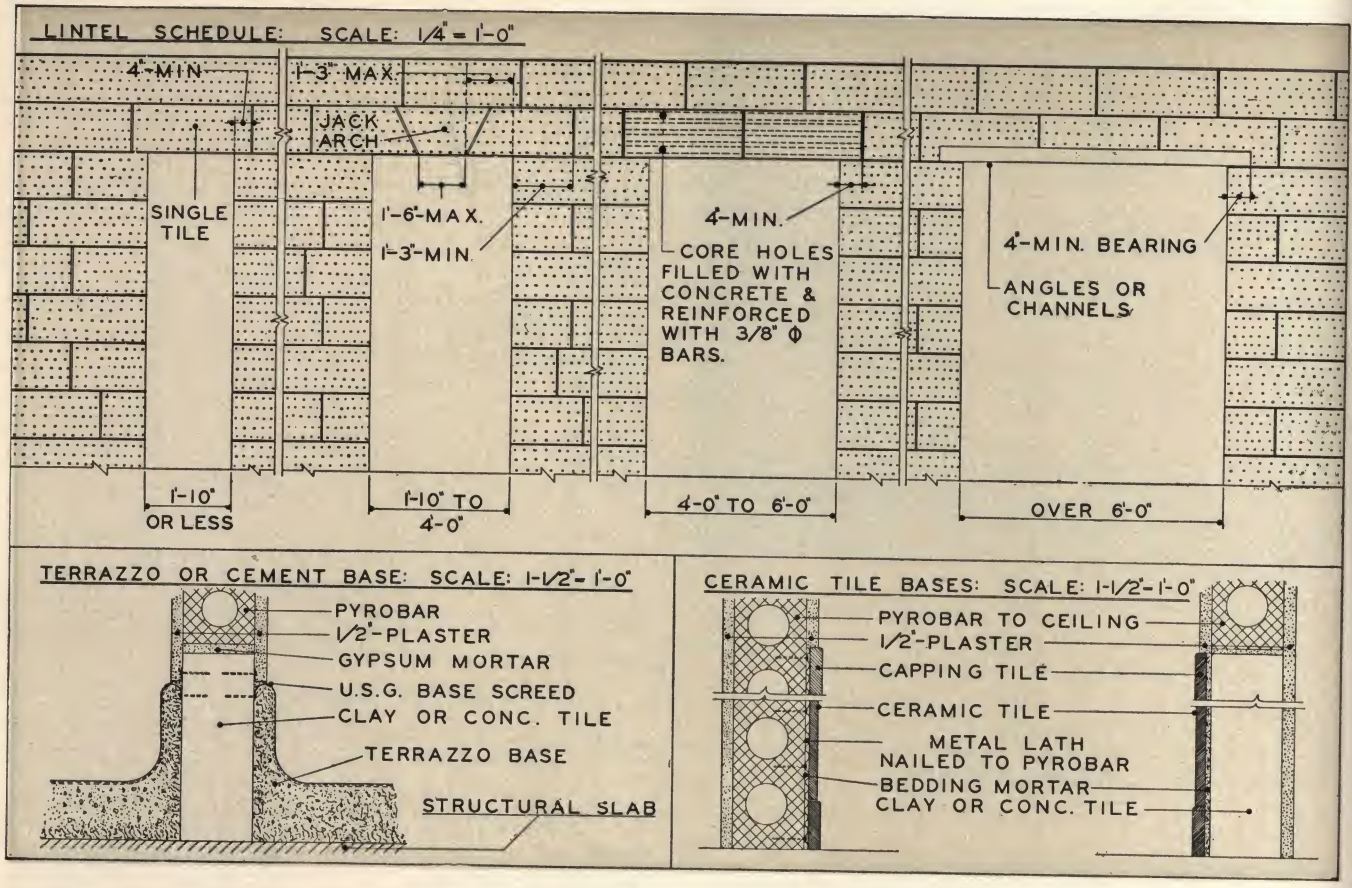

ROOM BASES: SCALE: 1-1/2" - 1'-0"




ATTACHMENTS: SCALE: 1-1/2" - 1'-0"



# PYROBAR PARTITION TILE




## MASONRY SPECIFICATIONS FOR PYROBAR PARTITION TILE

SCOPE: Unless otherwise shown on plans, all partitions, including pipe chases, shafts, etc., shall be constructed of gypsum partition tile.

### MATERIALS

*Gypsum Partition Tile* shall be PYROBAR, of sizes indicated, as made by United States Gypsum Company.

*Cement for mortar* shall be RED TOP Partition Tile cement as made by United States Gypsum Company.

*Sand* shall be clean and sharp, complying with ASTM Designation C-35-39.

*Wood Nailing Blocks* shall be not less than ¾" thick by 12" long by the thickness of the PYROBAR Tile.

### ERECTION

All mortar shall be mixed in proportions of 1 part Partition Tile Cement to 3 parts sand, by weight. Mortar shall not be retempered. After door bucks are erected and rough plumbing and wiring is in place, the first course shall be laid with core holes horizontally by bedding in mortar to a true and straight line according to partition layout as shown on plans. Succeeding courses shall be laid to a line in ½" thick full mortar beds, uniformly level in each course, and with vertical joints staggered. Cut all joints flush. Partitions shall be well anchored to intersecting masonry walls 12½" on centers vertically with corrugated wall ties or 16d or 20d cut nails. Wedge tightly at ceiling and slush full with mortar. All chinks and crevices and the space between tile and door bucks shall be slushed full with mortar. Door bucks shall be anchored to PYROBAR with either buck tie or 16d cut nails.

### OPTIONAL INCLUSIONS (See details).

**1.** *Lintels* shall be formed as follows: Openings of 22" or less with single tile. Openings between 22" and 48" with jack-arch construction. Openings between 48" and 72" with reinforced gypsum lintels. Openings over 72" with steel angles or channels of sufficient size.

**2.** *Wood Nailing Blocks* shall be nailed to one end of each tile before setting into wall wherever lightweight fixtures or heavy trim, etc., are to be attached to the partition.

**3.** *Heavy Fixtures* shall be secured to PYROBAR partitions with bolts through the tile, using large steel washers on both sides. Set bolts into place before plastering.

**4.** *Wood Grounds* for plastering shall be nailed into the tile at base and around openings to provide a ½" total thickness of plaster.

**5.** *Ceramic Tile or Portland Cement Base.* Wherever such wall finish is shown on plans or required by specifications, metal lath shall be nailed directly to the PYROBAR. In lieu thereof, structural clay tile, of equal thickness, may be substituted for the PYROBAR wherever such wall finish is required.

# BASECOAT PLASTERS

## RED TOP* CEMENT PLASTER

### DESCRIPTION

RED TOP Cement Plaster is a neat gypsum plaster requiring the addition of an aggregate and water on the job. It is the basecoat that receives the finish coat plaster.

Complies with ASTM Designation C28-40 for "Gypsum Neat Plaster" and Federal Specification SS-P-402, Type N.

### FUNCTION AND UTILITY

RED TOP Cement Plaster is used for scratch (1st coat) and brown (2nd coat) wherever good plastering aggregate is available.

*FIREPROOF*—Made from gypsum rock, it is incombustible and will not transmit high temperatures until completely calcined; a slow process. In this respect, gypsum plaster is unique. See fire test data page 8, for authoritative fire ratings.

*ADAPTABLE*—RED TOP Cement Plaster bonds firmly with ROCKLATH* plaster base, metal lath, fiber insulation lath, wood lath, PYROBAR* gypsum partition tile, clay tile, porous brick and certain other approved plaster bases.

RED TOP Cement Plaster is the standard of excellence for receiving such finish coats as lime putty, Keene's Cement, gypsum trowel finish, gypsum float finish, ORIENTAL* Interior finish, gypsum acoustical plasters, etc. It is an excellent base to receive acoustical tile.

RED TOP Cement Plaster is plastic, permitting wide latitude in its use for plain or curved surfaces.

*UNIFORM*—RED TOP Cement Plaster is manufactured on a nation-wide basis within narrow limits of tolerance. Its "stabilized set" minimizes the hazards due to impure water or aggregate and job conditions. Its set is adjusted for seasonal conditions.

*STRONG*—When mixed with good sand according to specifications, RED TOP Cement Plaster has a compressive strength up to 1,000 lbs. per sq. in. (see test data, page 36). It is capable of withstanding normal wear and usage for the life of the building.

*ECONOMICAL*—RED TOP Cement Plaster is lowest in cost of the various types of gypsum basecoats because:

The neat plaster is low in cost and is mixed with economical aggregate which increases bulk and coverage.

RED TOP Cement Plaster is highly plastic, thus is easily and quickly applied by the mechanic.

Normal usage requires little or no maintenance.

### LIMITATIONS OF USE

**1.** RED TOP Cement Plaster should be sanded strictly according to specifications. Over-sanding drastically decreases its strength. Sand content is easily calculated. The sand content of a No. 2 shovel full of damp sand is approximately 15 lbs.

**2.** Under no conditions should RED TOP Cement Plaster be applied to concrete. Use BONDCRETE* Plaster, described on page 35.

**3.** RED TOP Cement Plaster should not be used where contact with excessive water or moisture is expected. In such instances, use portland cement-lime plaster.

**4.** RED TOP Cement Plaster is an interior basecoat plaster and should not be used on the exterior where exposed to the elements.

**5.** Because bituminous compounds do not provide an ideal base for gypsum plaster basecoats; plaster application on masonry walls and concrete that have been coated with these compounds is not recommended.

**Trademark Reg. U. S. Pat. Off.*

# BASECOAT PLASTERS

## PLASTERING SPECIFICATIONS
### (FOR RED TOP CEMENT PLASTER)

### GENERAL PROVISIONS

In cold weather a minimum temperature of 40° F. shall be maintained in the building until the plaster is dry. After plaster has set, ventilation shall be provided to eliminate excessive moisture in the building. In hot, dry weather, all openings shall be closed with sash or cloth during the application of plaster. No plaster shall be allowed to dry before setting.

### SCOPE

Unless otherwise specified or shown on drawings, all walls and ceilings shall be plastered as herein described.

### MATERIALS

*Basecoat plaster* shall be RED TOP Cement Plaster manufactured by the United States Gypsum Company (except that the scratch coat over metal lath shall be fibered RED TOP Cement Plaster).

*Sand*—Shall be clean and sharp, complying with ASTM Designation C35-39.

*Optional Inclusion* (for Vermiculite)—Vermiculite shall be Standard Plaster Aggregate complying in particle size with ASTM Designation C35-39, and weighing not less than 7½ or more than 10 pounds per cubic foot.

*Finish Plaster* (*Note to Architect—Select the desired finish from pages 37 to 41, and insert herein the applicable materials*).

### GROUNDS

The total plaster thickness over gypsum lath, PYROBAR gypsum partition tile or fiber insulation lath, shall be ½"; over brick, clay tile or other masonry, it shall be ⅝" thick and over metal lath the plaster thickness shall be ⅝" measured from the face of the lath. (Greater thickness in grounds may be required for certain fire ratings. See table, page 30.)

### MIXING OF BASECOATS

The scratch or first coat over all lath shall be mixed in the proportion of 1 part gypsum plaster to not more than 2 parts sand by weight (13 No. 2 shovels of damp sand per 100 lb. bag of plaster).

The brown or second coat over all lath and the scratch and brown over masonry surfaces (except monolithic concrete), shall be mixed in the proportion of 1 part gypsum plaster to not more than 3 parts sand by weight (20 No. 2 shovels of damp sand per 100 lb. bag of plaster).

(*Note to Architect*). *If Vermiculite aggregate is used, the proportioning shall be as follows:*

*Scratch coat over lath*—100 lbs. gypsum plaster to not more than 2 cu. ft. Vermiculite; over masonry, 100 lbs. gypsum plaster to not more than 3 cu. ft. Vermiculite.

*Brown coat over lath or masonry*—100 lbs. gypsum plaster to not more than 3 cu. ft. Vermiculite.

*Double-up work*—100 lbs. gypsum plaster to not more than 2½ cu. ft. Vermiculite.

### APPLICATION OF BASECOATS

(*Note to Architect*). *Three-coat work is the preferred plaster specification, because it is more conducive to application to full grounds. It may be used throughout the job except over masonry where 2-coat work is preferred. Three-coat work should always be required over metal lath and resilient lathing systems.*

*Two-Coat Work*—Base (first) coat shall be applied with sufficient material and pressure to form good full keys on wood lath, and good bond on gypsum or fiber insulation lath or masonry, as the case may be, and to cover well, and then be doubled back to bring the plaster out to grounds, straightened to true surface with rod and darby and left rough, ready to receive the finish (second) coat. To avoid excess suction and dry-outs, it is preferable to moderately wet masonry surfaces before plastering.

*Three-Coat Work*—Scratch (first) coat shall be applied with sufficient material and pressure to form good full keys on wood and metal lath, wire lath and wire fabric, and good bond on gypsum or fiber insulation lath, as the case may be, and to cover well, and then be scratched to rough surface.

Brown (second) coat shall be applied after the scratch (first) coat has set firm and hard, brought out to grounds and straightened to a true surface with rod and darby, and left rough, ready to receive the finish (third) coat.

### MIXING AND APPLICATION OF FINISHES

Use the applicable finish coat specifications selected from pages 37 to 41.

# BASECOAT PLASTERS

## RED TOP WOOD FIBER PLASTER

### DESCRIPTION

RED TOP Wood Fiber Plaster is a factory-prepared gypsum basecoat plaster containing finely-shredded, selected wood fiber. It requires the addition of water only on the job.

### FUNCTION AND UTILITY

*STRONGER*—Compared to plaster sanded 1:3, Wood Fiber Plaster has:

3 times greater compressive and tensile strength.

2½ times greater resistance to lateral impact.

50 per cent greater surface hardness,

Consequently, has greater resistance to cracking.

*FIREPROOF*—Generally 50 per cent more fire resistant than sanded plaster. See ratings on page 36.

*FACTORY PREPARED*—Particularly suitable where good aggregates are unavailable. Avoids dangers of improper proportioning of aggregates.

*LIGHTWEIGHT*—Dead load is 25 per cent lighter than sanded plaster.

*COST*—A wood fiber basecoat plaster job costs approximately 15 per cent more than RED TOP Cement Plaster sanded on the job.

### LIMITATIONS

Same as paragraphs 2, 3, 4, and 5 under Limitations for use of RED TOP Cement Plaster, page 31.

## PLASTERING SPECIFICATIONS

### (FOR RED TOP WOOD FIBER PLASTER)

### GENERAL PROVISIONS

In cold weather a minimum temperature of 40°F. shall be maintained in the building until the plaster is dry. After plaster has set, ventilation shall be provided to eliminate excessive moisture in the building. In hot, dry weather, all openings shall be closed with sash or cloth during the application of plaster. No plaster shall be allowed to dry before setting.

### SCOPE

Unless otherwise specified or shown on drawings, all walls and ceilings shall be plastered as herein described.

### MATERIALS

*Basecoat plaster* shall be RED TOP Wood Fiber Plaster manufactured by United States Gypsum Company.

*Finish Plaster*—(*Note to Architect—Select the desired finish from pages 37 to 41, and insert herein the applicable materials*).

### GROUNDS

The total plaster thickness over gypsum lath, PYROBAR gypsum partition tile or fiber insulation lath shall be ½″; over brick, clay tile or other masonry, it shall be ⅝″ thick, and over metal lath the plaster thickness shall be ⅝″ measured from the face of lath.

### MIXING AND APPLICATION

On all types of lath, RED TOP Wood Fiber Plaster shall be mixed with water only on the job. The scratch and brown coats over masonry surfaces (except monolithic concrete), shall be mixed in the proportion of 1 part Wood Fiber Plaster to 1 part sand by weight (7 No. 2 shovels of damp sand per 100-lb. bag Wood Fiber plaster).

The scratch coat of plaster shall be applied to a thickness of approximately ¼″ with sufficient pressure to form a good bond. Cross rake and allow to set. When partially dry, apply the brown or second coat to full grounds, allowing approximately 1/16″ for the finish coat. Rod and darby to a true and level surface and roughen slightly.

All porous masonry surfaces shall be moderately wetted to provide proper suction before plastering. Brown (second coat) shall be applied after the scratch (first coat) has "taken up," but before it sets.

### OPTIONAL INCLUSION

At the option of the contractor, all brown coats may be applied to the unset scratch coat, *except when plastering over metal lath or Resilient ROCKLATH ceilings.*

### MIXING AND APPLICATION OF FINISH COAT PLASTER

Use the applicable finish coat specifications selected from pages 37 to 41.

# BASECOAT PLASTERS

## RED TOP SANDED PLASTER

### DESCRIPTION

RED TOP Sanded Plaster is a factory-sanded gypsum basecoat plaster requiring the addition of water only, on the job.

Complies with ASTM Designation C28-40 for "Gypsum Ready-sanded Plaster" and Federal Specification SS-P-402, Type S (scratch coat) or Type B (brown coat).

### FUNCTION AND UTILITY

RED TOP Sanded Plaster is particularly suitable where good plastering sand is not available. It provides all those features described for RED TOP Cement Plaster, plus the following:

*FACTORY SANDED*—Properly selected aggregate correctly proportioned and machine-mixed.

*COST*—Slightly higher than job-sanded RED TOP Cement Plaster, but more economical than other gypsum basecoat plasters.

### LIMITATIONS OF USE

Same as paragraphs 2, 3, 4 and 5 of Limitations of Use under RED TOP Cement Plaster, page 31.

## PLASTERING SPECIFICATIONS
### (FOR RED TOP SANDED PLASTER)

### GENERAL PROVISIONS

In cold weather a minimum temperature of 40°F. shall be maintained in the building until the plaster is dry. After plaster has set, ventilation shall be provided to eliminate excessive moisture in the building. In hot, dry weather, all openings shall be closed with sash or cloth during the application of plaster. No plaster shall be allowed to dry before setting.

### SCOPE

Unless otherwise specified or shown on drawings, all walls and ceilings shall be plastered as herein described.

### MATERIALS

*Basecoat Plaster* shall be RED TOP Sanded Plaster manufactured by United States Gypsum Company. Over masonry, RED TOP Sanded Plaster (for masonry) shall be used.

*Finish Plaster* (*Note to Architect—Select the desired finish from pages 37 to 41, and insert herein the applicable materials*).

### GROUNDS

The total plaster thickness over gypsum lath, PYROBAR gypsum partition tile or fiber insulation lath shall be ½″; over brick, clay tile or other masonry it shall be ⅝″ thick, and over metal lath the plaster thickness shall be ⅝″ measured from the face of the lath.

### MIXING AND APPLICATION

Sanded plaster shall be mixed with water only. The scratch coat of plaster shall be applied to a thickness of approximately ¼″ with sufficient pressure to form a good bond. Cross rake and allow to set. When partially dry, apply the brown or second coat to full grounds, allowing approximately 1/16″ for the finish coat. Rod and darby to a true and level surface and roughen slightly.

All porous masonry surfaces shall be moderately wetted to provide proper suction before applying scratch coat. Brown (second coat) shall be applied after the scratch (first coat) has "taken up," but before it sets.

### OPTIONAL INCLUSION

At the option of the contractor, all brown coats may be applied to the unset scratch coat, *except when plastering over metal lath or Resilient ROCKLATH ceilings.*

### MIXING AND APPLICATION OF FINISH COAT PLASTER

Use the applicable finish coat specifications selected from pages 37 to 41.

# BASECOAT PLASTERS

## BONDCRETE* PLASTER

### DESCRIPTION

RED TOP BONDCRETE is a gypsum basecoat plaster specially formulated to bond with rough interior monolithic concrete surfaces. It is factory prepared, requiring addition of water only on the job.

There are no ASTM or Federal Specifications covering this type of plaster.

### FUNCTION AND UTILITY

BONDCRETE is the only recommended plaster for application to concrete. It provides the bonding plaster to receive a browning, or leveling, coat of RED TOP Cement Plaster or Wood Fiber Plaster when necessary.

If a leveling coat is unnecessary, the finish plaster may be applied directly to the BONDCRETE.

*BONDING STRENGTH*—BONDCRETE adheres well to properly prepared concrete surfaces. See Surface Preparation under Specifications for proper conditioning of concrete surfaces. This is important.

The thermal coefficient of expansion of BONDCRETE is approximately the same as for concrete.

*LOW COST*—An economical bonding coat to provide for the application of plaster direct to concrete surfaces.

### LIMITATIONS OF USE

**1.** BONDCRETE should be used only on concrete that is properly prepared for plastering. It should never be applied to smooth concrete.

**2.** Maximum thickness of BONDCRETE and basecoat shall not exceed ⅜″ on ceilings or ⅝″ on walls. If additional thickness is required, metal lath shall be secured to the concrete surfaces.

**3**. The same as paragraphs 3, 4, and 5 under RED TOP Cement Plaster, page 31.

## PLASTERING SPECIFICATIONS

### (FOR RED TOP BONDCRETE PLASTER)

1. *Under Materials of the Plastering Specification, include the following:*

Basecoat for plastering over concrete surfaces shall be BONDCRETE manufactured by United States Gypsum Company.

2. *Under Mixing and Application, include the following:*

Mix BONDCRETE with water only. Concrete surfaces to receive plaster shall be properly prepared as specified elsewhere. Surfaces of walls and columns shall have a scratch coat of bond plaster, followed by a brown coat of gypsum plaster (in the proportions of 1 part of gypsum neat plaster to not more than 3 parts of sand, by weight) trowelled into the scratch coat before it has set. The brown coat shall be brought out to grounds, straightened to a true surface with rod and darby, and left rough, ready to receive the finish coat. Total thickness of plaster not to exceed ⅝″.

Concrete ceilings shall have a coat of bond plaster scratched in thoroughly, doubled back, and filled out to a true, even surface and left rough, ready to receive the finish coat. Total thickness of plaster not to exceed ⅜″.

If additional thickness of plaster is required, metal lath shall be secured to the concrete surface.

3. *A separate paragraph must be included as follows:*

*Surface Preparation.* Monolithic concrete surfaces shall be cleaned of all dust, loose particles, and other foreign matter. Laitance and efflorescence shall be removed by washing first with a 10 per cent solution of commercial muriatic acid and water and then with clean water to remove all traces of acid. Grease and oil shall be completely removed. A smooth concrete surface resulting from pouring on smooth forms, or vibrating of concrete, is an improper base for plaster application.

Concrete surfaces shall have sufficient roughness to provide proper bond. If surfaces are not rough, they shall be hacked or bush-hammered, or a dash-coat of portland cement grout, composed of 1 part of cement and 1½ parts of fine sand mixed to a mushy consistency, shall be applied. Using a stiff fiber brush, the portland cement grout shall be forcibly dashed on the concrete surface with a whipping motion. This coat shall be kept damp for at least 2 days immediately following its application and then allowed to dry. Before application of the plaster, the surface shall be evenly dampened if necessary to provide proper suction.

**Trademark Reg. U.S. Pat. Off.*

# BASECOAT PLASTERS

## TECHNICAL DATA

| MIX: | WOOD FIBER | CEMENT PLASTER: SAND | | | CEMENT PLASTER: VERMICULITE | |
|---|---|---|---|---|---|---|
| | Neat | 1:1 | 1:2 | 1:3 | 100 lbs.: 2 Cu. Ft. | 100 lbs.: 3 Cu. Ft. |
| Compressive Strength—lbs. per sq. in. | 2600 | 2000 | 1000 | 700 | 450 | 250 |
| Tensile Strength—lbs. per sq. in. | 440 | 285 | 220 | 150 | 150 | 100 |
| Cost Factor, Labor & Material | 100 | 95 | 93 | 90 | 95 | 95 |

## FIRE TEST DATA

| CONSTRUCTION | PANEL TYPE: TYPE BASE | PANEL TYPE: PLASTER & AGGREGATE | PANEL TYPE: THICKNESS | RATING AND REFERENCE |
|---|---|---|---|---|
| **PARTITIONS** | | | | |
| Wood Frame | 3/8" ROCKLATH Plain | Gypsum-Sand 1:2, 1:2 | 1/2" | 45 Minutes (1) |
| Wood Frame | 3/8" ROCKLATH Plain | Gypsum Wood Fiber | 1/2" | 1 Hour (1) |
| Wood Frame | 3/8" Perf. ROCKLATH | Gypsum-Sand 1:2, 1:2 | 1/2" | 1 Hour (1) |
| Wood Frame | Metal Lath | Gypsum-Sand 1:2, 1:3 | 3/4" | 45 Minutes (1) |
| Wood Frame | Metal Lath | Gypsum-Sand 1:2, 1:2 | 3/4" | 1 Hour (1) |
| Wood Frame | Metal Lath | Gypsum Wood Fiber | 3/4" | 1 1/2 Hours (1) |
| Wood Frame | Metal Lath | Gypsum-Vermiculite 100:2 1/2, 100:3 1/2 | 3/4" | 1 Hour (2) |
| 3" Hollow PYROBAR | | Gypsum-Sand 1:3 | 1/2" | 2 Hours (1) (2) (3) |
| 4" Hollow PYROBAR | | Gypsum-Sand 1:3 | 1/2" | 3 Hours (1) (2) (3) |
| Solid | Metal Lath | Gypsum-Sand 1:2, 1:3 | 2" | 45 Minutes (1) |
| Solid | Metal Lath | Gypsum-Sand 1:2, 1:2 | 2" | 1 Hour (3) |
| Solid | Metal Lath | Gypsum Wood Fiber | 2" | 1 3/4 Hours (1) |
| Solid | Metal Lath | Gypsum Wood Fiber | 2 1/4" | 2 Hours (1) |
| Solid | ROCKLATH | Gypsum-Sand 1:1, 1:2 | 2" | 1 Hour (3) |
| TRUSSTEEL† Stud | Metal Lath | Gypsum-Sand 1:2, 1:3 | 3/4" | 45 Minutes (1) |
| TRUSSTEEL Stud | Metal Lath | Gypsum-Sand 1:2, 1:3 | 7/8" | 1 Hour (1) |
| TRUSSTEEL Stud | Metal Lath | Gypsum-Sand 1:2, 1:2 | 3/4" | 1 Hour (1) |
| TRUSSTEEL Stud | Metal Lath | Gypsum Wood Fiber | 7/8" | 2 Hours (1) |
| **CEILINGS** | | | | |
| Wood Frame | 3/8" Perf. ROCKLATH | Gypsum-Sand 1:2 | 1/2" | 45 Minutes (1) (2) |
| Wood Frame | 3/8" Perf. ROCKLATH | Gypsum-Sand 1:2 | 1/2" | *1 Hour (1) |
| Wood Frame | Metal Lath | Gypsum-Sand 1:2, 1:3 | 3/4" | 45 Minutes (1) |
| Wood Frame | Metal Lath | Gypsum-Sand 1:2, 1:3 | 3/4" | **1 Hour (1) |
| Wood Frame | Metal Lath | Gypsum Wood Fiber | 3/4" | 1 Hour (2) |
| Steel Joist*** | Metal Lath | Gypsum-Sand 1:2, 1:3 | 3/4" | 2 Hours (1) |
| Steel Joist*** | Metal Lath | Gypsum-Vermiculite 100:2, 100:3 | 3/4" | 3 Hours (1) |
| Steel Joist*** | Metal Lath | Gypsum Wood Fiber | 1" | 3 Hours (1) |
| Steel Joist*** | Metal Lath | Gypsum-Vermiculite 100:2, 100:3 | 1" | 4 Hours (1) |
| Cellular Steel Floor**** | Metal Lath | Gypsum Wood Fiber | 1" | 4 Hours (1) |
| Cellular Steel Floor**** | Metal Lath | Gypsum-Vermiculite 100:2, 100:3 | 1" | 4 Hours (1) |

(1) National Bureau of Standards.
(2) Underwriter's Laboratories.
(3) Nationally recognized fire testing laboratory—name on request.
*Lath applied with 1 1/8", 13 gauge nails, 3/8" head and joints covered with Striplath. 1 3/4" nails.
**Lath applied with 1 1/2", 11 gauge, 7/16" head barbed roofing nails, 6" O.C.
***2 1/2" reinforced concrete slab on Riblath or 2" precast gypsum tile above.
****Ceiling 9" or more below floor slab.

†*Trademark Reg. U. S. Pat. Off.*

# FINISHING PLASTERS

## DESCRIPTION

The finish coat plaster provides the base for final wall or ceiling decoration. It is applied to a thickness of 1/16" to 1/8", usually over a gypsum plaster basecoat.

Several types of finish coats are available, each with characteristics to serve specific requirements, and generally classified according to the principal cementitious ingredient as follows:

**1.** *Lime and Gauging*, commonly known as "white coat" for a smooth white trowel finish. It consists of lime, soaked to a smooth putty, and mixed with gypsum gauging plaster. With addition of sand, is adaptable for sand float finishes. The three essentials to a good white coat job are:

a. Lime must be highly plastic and completely hydrated.

b. Correct proportioning of gauging plaster to lime putty (see specifications) and thorough blending of ingredients.

c. Careful application and sufficient trowelling to produce a smooth glossy surface.

**2.** *Lime and Keene's*—for extra hard smooth white trowel finish. With addition of sand, is adaptable for sand float finishes. Also available mill mixed and colored under "ORIENTAL"* Interior Finish brand.

**3.** *Gypsum*—Trowel (smooth), or sand float prepared finishes.

**4.** *Acoustical Plaster*—(*SABINITE**), for sound absorption. (See page 41 or AIA File 39-B or Sweets Section 11A-12.)

## ESSENTIALITY OF COMPLETE HYDRATION IN DOLOMITIC FINISHING LIMES

Some years ago an exhaustive investigation was undertaken by the National Bureau of Standards in co-operation with several architects and lime manufacturers to determine reasons for "lime bulges" (delamination of finish from basecoat) occurring on many government and private buildings. The failures investigated occurred on surfaces which had been "white coated" with *dolomitic* hydrated finishing limes from the Ohio fields, which have been widely used. Failures often occur 5 or 10 years after erection of the buildings.

After much analysis, it was the consensus of opinion that the delayed hydration and attendant expansion of unhydrated oxides in the "normal" dolomitic finishing limes resulted in bulging and delamination.

To correct this difficulty, United States Gypsum Company took the lead in developing "IVORY"* Pressure Hydrated finishing lime, a "fully" or "pressure" (less than 8 per cent unhydrated) hydrated Ohio dolomitic finishing lime.

ASTM specifications C206-46T for *special* finishing lime and proposed amendments to Federal specifications, have been written to cover 92 per cent hydrated limes; a specification has been published by the National Lime Association. This type of finishing lime is required by ASA Specifications for Gypsum Plastering, A42.1-1946.

Note that all high calcium hydrated limes (properly soaked) comply with these requirements as do high calcium quicklimes (properly slaked).

**TECHNICAL DATA—FINISH PLASTERS**

| | GAUGING PLASTER TO LIME | QUICK TROWELLING KEENE'S TO LIME | | GYPSUM TROWEL FINISH | GYPSUM FLOAT FINISH | ORIENTAL FINISH |
|---|---|---|---|---|---|---|
| **Mix by weight of dry materials:** | 1:2 | 2:1 Medium Hard | 4:1 Hard | NEAT | NEAT | NEAT |
| Color | White | White | White | White | White or Gray | 12 Colors |
| Finish Texture | Smooth | Smooth | Smooth | Smooth | Float | Float |
| Hardness in Kilograms (†) | 34 | 50 | 70 | 55 | (‡) | (‡) |
| Workability | 1 | 4 | 5 | 2 | 3 | 6 |
| Cost Factor Labor & Mat'l. | 100 | 170 | 180 | 125 | 125 | 160 |

(†) Kilograms required to force a 10MM ball .01" into plaster face.
(‡) These are hard finishes but the aggregate in the surface does not permit an indication with this test.

*Trademark Reg. U.S. Pat. Off.

# FINISHING PLASTERS

## LIME PUTTY—GAUGING (WHITE COAT) FINISH

### DESCRIPTION

Hydrated Finishing Lime (or Finishing Quicklime) is soaked (or slaked) to putty consistency, blended in proper proportion with gypsum gauging plaster, and is trowelled to a smooth, hard finish usually over a properly prepared gypsum basecoat. This is by far the most widely used plaster finish coat due to ease of application, flexibility, whiteness and economy.

### FUNCTION & UTILITY OF INGREDIENTS

*LIMES:*

The function of lime in a finish plaster is to provide the "spread" and plasticity to permit fast, easy application with full flexibility and economy. Lime does not "set," but hardens slowly; it likewise shrinks on drying. Therefore, gypsum gauging must be blended into the lime putty in proper proportion to provide initial set and strength, and to avoid shrinkage cracks.

*IVORY*—A "fully" "pressure" (over 92%) special finishing hydrated lime that will not expand measurably in the wall. *Requires no soaking* to produce a smooth, uniform, white, highly plastic putty. May be mixed by adding dry lime and gauging to water in mechanical mixer because it develops its normal plasticity almost immediately. This is the preferred lime. Meets ASTM Designation C206-46T Type S and Federal Specification SS-L-351, Type F, including the added requirement of not more than 8% unhydrated oxides.

*RED TOP and GRAND PRIZE**—Shipped from *Genoa, Ohio*, are normal dolomitic hydrated finishing limes, and are only partially hydrated. They comply with Federal Specification SS-L-351, Type F, and ASTM Designation C6-46, Type N, but do not comply with specifications limiting the unhydrated oxides to 8 per cent.

RED TOP Hydrated Limes shipped from *Farnams, Massachusetts* and *New Braunfels, Texas*, are high calcium limes and are completely hydrated. They comply with ASTM C206-46T Type S and Federal Specification SS-L-351, and meet specifications limiting the unhydrated oxides to not more than 8 per cent.

All types of USG* hydrated lime except "IVORY" Finish Hydrate require overnight soaking. They yield a smooth, highly plastic putty of exceptional purity. Until the advent of pressure hydrates, such as "IVORY," they were the standards of excellence.

*RED TOP and CHESHIRE Brands*—Are high calcium finishing quicklimes. When properly slaked and aged for at least 48 hours, hydration is complete, (over 92%) thereby insuring against further hydration and attendant possibilities of expansion on the wall. Comply with ASTM Designation C5-26, and Federal Specification SS-Q-351. They have unusually high plasticity and purity.

*GAUGING PLASTERS*

1. *CHAMPION** and *STAR** are *White* Gauging Plasters, for blending with lime putty to provide initial set and strength. They are ground to the proper fineness to blend readily and completely, thus minimizing the danger of check-cracking, crazing, etc. when properly used. They give strength and hardness to the surface finish. CHAMPION has a quicker "set" than STAR Gauging Plaster. They are the preferred gauging plasters because of the extreme whiteness of the finish when used with limes of high purity.

Complies with ASTM Designation C28-40 "Calcined gypsum for finishing coat (white)" and Federal Specification SS-P-402, Type G.

2. *RED TOP Gauging* is a "local" gauging plaster, so called because it is made from a rock grade that is used in basecoat plasters. It is available with slow or fast "set." It is distinguished from White Gauging Plasters by its darker color. Except for color, RED TOP Gauging Plasters are the equal of CHAMPION and STAR Gauging Plasters.

Complies with ASTM Designation C28-40 "Calcined gypsum for finishing coat (gray)" and Federal Specification SS-P-402, Type G.

### PROPORTIONING—See Specifications

### LIMITATIONS OF USE

**1.** For interior application only.

**2.** Recommended proportioning must be observed. Failure to use sufficient gauging plaster, to blend thoroughly, or to trowel adequately often results in check-cracking, crazing, lack of hardness and bond failure.

**3.** Designed for normal humidity conditions. Where excessive humidity or frequent exposure to moisture is expected, use Keene's Cement as later described.

**4.** Designed for normal usage. If hardness, and resistance to abrasion is required, use Keene's Cement as later described.

**5.** Must be applied to gypsum or lime plaster basecoat. Lime-gauging bond to portland cement plasters is inadequate. Do not apply direct to masonry.



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# FINISHING PLASTERS

## LIME PUTTY—GAUGING (WHITE COAT) FINISH—Continued

### SPECIFICATIONS

Include the following in plaster specifications given on pages 4 to 7.

### MATERIALS

*Lime* for finish plaster shall be (*select one*):

(*IVORY Finish Hydrate Lime*)

(*RED TOP or CHESHIRE Finish Quicklime*)

(*RED TOP or GRAND PRIZE Finish Hydrate Lime*)

manufactured by United States Gypsum Company.

*Gauging Plaster* shall be (*select one*):

(*CHAMPION or STAR "White" Gauging Plaster*)

(*RED TOP "Local" Gauging Plaster*)

manufactured by United States Gypsum Company.

### MIXING AND APPLICATION OF FINISH PLASTER

Lime shall be thoroughly soaked (or slaked and aged) according to manufacturer's directions printed on containers. (*NOTE: IVORY Finish Hydrate requires no soaking or slaking.*) Mix in the proportions of 3 parts lime putty to 1 part of gauging plaster, by volume. The equivalent by weight shall be 2 parts dry lime to 1 part dry gauging plaster. Mixing shall be done on plasterer's board, thoroughly blending the gauging into the lime putty. When thoroughly mixed, it shall be applied to a surface-dry basecoat. Scratch in thoroughly and immediately double back to fill out to a true even surface. Thickness to be 1/16" to 1/8". Trowel once before final set, and water trowel after set to provide dense surface for decoration. Brush with clean water only.

## KEENE'S-LIME FINISH

### DESCRIPTION

Keene's Cement is a high strength, white gypsum plaster. Keene's-Lime finish is composed of lime putty blended with Keene's Cement in proportions required to obtain desired hardness.

Complies with ASTM Designation C61-40 and Federal Specification SS-C-161, Type I (Regular) and Type II (Quick Troweling).

### FUNCTION AND UTILITY

In addition to those listed for lime putty-gauging, it provides:

*RESISTANCE TO ABRASION.* Keene's Cement has exceptionally high strength and surface hardness. See Technical Data.

*LOW WATER ABSORPTION.* Keene's Cement, having a high density, has low water absorption.

*CHOICE OF HARDNESS.* Keene's Cement is mixed with lime putty in varying proportions for "hard" and "medium hard" finishes. See Technical Data and specifications.

*TWO TYPES.* Regular and Quick Troweling. Regular Keene's sets slowly, requires more troweling and may be used with any proportion of lime.

Quick Troweling Keene's sets faster, requires less troweling and must be used with a minimum of 25 lbs. of dry hydrated lime per 100 lbs. of Keene's Cement.

### LIMITATIONS OF USE

**1.** Keene's Cement is for interior finishes only.

**2.** Keene's Cement finish is not recommended where exposure to water is extreme or continuous. Use portland cement-lime plaster.

**3.** For application over gypsum basecoats of high compressive strength only.

### SPECIFICATIONS

The following should be included in plaster specifications given on pages 4 to 7.

### MATERIALS

*Keene's Cement* shall be (Regular Keene's Cement) (Quick Troweling Keene's Cement) manufactured by United States Gypsum Company.

*Lime—(Refer to Lime Gauging Specifications, above, and select one).*

### MIXING AND APPLICATION

This specification should be exactly as given for Lime-Gauging, except that Keene's Cement should be substituted for Gauging Plaster and the proportioning should be changed to one of the following:

# FINISHING PLASTERS

## KEENE'S—LIME FINISH—MIXING AND APPLICATION CONTINUED

1. "*Medium Hard*" *Finish* shall be mixed in the proportion of 50 lbs. of dry hydrated lime to 100 lbs. of Keene's Cement. This proportion is approximately 100 lbs. of lime putty to 100 lbs. of Keene's Cement, or 35 qts. of lime putty to 100 lbs. of Keene's Cement.

2. "*Hard*" *Finish* shall be mixed in the proportion of 25 lbs. of dry hydrated lime to 100 lbs. of Keene's Cement. This proportion is approximately 50 lbs. of lime putty to 100 lbs. of Keene's Cement, or 17 qts. of lime putty to 100 lbs. of Keene's Cement.

3. *Keene's Lime-Sand Float Finish* shall be mixed in the proportion of 50 lbs. of dry hydrated lime, 100 lbs. of Keene's Cement and 400 lbs. of sand. This proportion is approximately 100 lbs. of lime putty, 100 lbs. of Keene's Cement and 400 lbs. of sand, or 35 qts. of lime putty, 100 lbs. of Keene's Cement and 4 to 5 cu. ft. of sand (26 No. 2 shovels of sand).

# PREPARED GYPSUM FINISHES

## RED TOP GYPSUM TROWEL FINISH and RED TOP GYPSUM SAND FLOAT FINISH

### DESCRIPTION

RED TOP Trowel and Sand Float finishes are mill-prepared gypsum finish coat plasters requiring the addition of water only.

There are no ASTM or Federal Specifications covering this type of plaster.

### FUNCTION AND UTILITY

*RED TOP GYPSUM TROWEL FINISH*—is used where hard, smooth surfaces are desired.

*RED TOP GYPSUM SAND FLOAT FINISH*—is used where a quality float finish is desired.

*STRENGTH*—approximately twice the strength of ordinary lime-gauging finishes.

*EARLY DECORATION*—may be painted as soon as set and dry.

*FACTORY PREPARED*—mill selection of ingredients and formulation insure uniform results and avoid variations possible with job mixing.

*NON-ALKALINE*—contain nothing injurious to paint or decorations.

*BOND*—provides durable and natural bond to gypsum basecoat.

*COST*—slightly higher than job-prepared finishes.

### LIMITATIONS

**1.** Designed for application over gypsum basecoats only.

**2.** Should not be used on exterior surfaces where exposed to the elements or on interiors exposed to excessive moisture.

### PLASTERING SPECIFICATIONS

The following should be included in Plastering Specifications:

*Finish Coat* shall be (RED TOP Gypsum Trowel Finish) or (RED TOP Gypsum Sand Float Finish) manufactured by United States Gypsum Company.

### MIXING AND APPLICATION

*Finish Coat*—Prepared gypsum finish shall be mixed with water only in strict accordance with the manufacturer's directions.

*Include whichever of the following paragraphs is applicable:*

*RED TOP Gypsum Trowel Finish* shall be applied in 2 coats to a total thickness of not more than ⅛" over a set, half-green gypsum basecoat. Scratch in a thin coat and double back with a second coat, filling out to a true and even surface. Trowel to a smooth finish free of cat faces and other blemishes. Use water sparingly during troweling.

*RED TOP Gypsum Sand Float Finish* shall be applied in 2 coats to a total thickness of not more than ⅛" over a set, half-green gypsum basecoat. If the basecoat has dried out, it shall be sprayed with water, but not soaked, before the finish coat is applied. Scratch in a thin coat and double back with a second coat, filling out to a true and even surface. Float with a suitable tool to give a surface free from slick spots, cat faces and other blemishes. Use water sparingly while floating.

# FINISHING PLASTERS

## ORIENTAL* INTERIOR (COLORED) FINISHES

### DESCRIPTION

ORIENTAL Interior Finish is a mill-prepared and colored finish plaster requiring the addition of water only.

There are no ASTM or Federal Specifications covering this type of plaster.

### FUNCTION AND UTILITY

*INTEGRALLY COLORED* at factory, requiring no decoration. Permits early occupancy. Avoids variations of color intensity that are possible when colors are mixed at site.

*COLORS* (with LIGHT REFLECTION for float finish). White—81%; Sahara Cream—74.6%; Ivory—77.5%; Tusk Ivory—72.7%; Harvest Buff—66.6%; Parchment—74.2%; Golden Buff—70.1%; Mist Gray—63.9%; Caenstone—51.4%; Shell Pink—64.8%; Desert Rose—56.2%; and Cool Green—67.4%.

*TEXTURE*—A finely floated surface or a textured finish—in 13 colors.

*STRENGTH*—highly resistant to abrasion due to very great hardness. See Technical Data, Page 8.

### LIMITATIONS OF USE

1. ORIENTAL Interior is for producing finely floated surfaces or textures. Do not use for a smooth finish.
2. To be used on interiors only.

### SPECIFICATIONS

The following should be included in plaster specifications given on pages 32 to 35.

### MATERIALS

*Finish Coat* shall be ORIENTAL Interior Finish, manufactured by United States Gypsum Company. Color shall be as selected by the architect from schedule of colors furnished by manufacturer.

### MIXING AND APPLICATION

*Finish Coat*—ORIENTAL Interior Finish shall be mixed with water only in accordance with the manufacturer's directions.

ORIENTAL Interior Colored Finish shall be applied over a set and half-green gypsum basecoat. (*Select one of following*):

*Float Finish*—Scratch in a thin coat and double-back with a second coat, filling out to a true and even surface. Surface shall be floated with a cork float to give a surface free of slick spots, cat faces and other blemishes. Do not use water while floating.

*Texture Finishes*—Textures shall be applied in such a manner that they will match the sample approved by the architect or his representative.

# SABINITE* ACOUSTICAL PLASTER FINISHES

## SABINITE TROWEL FINISH ("M")

### DESCRIPTION

SABINITE Trowel Finish is a highly efficient acoustical plaster, scientifically prepared to produce a continuous *trowel finish* of exceptional sound absorbent qualities. It is manufactured in four standard colors and white and requires the addition of water only. Basically mineral, it is incombustible.

## SABINITE FLOAT FINISH "F"

### DESCRIPTION

SABINITE Float Finish is a highly efficient acoustical plaster which provides a *float finish* effect. Having a harder surface than SABINITE trowel finish, it is more suitable for side walls which require sound conditioning. It is manufactured in four standard colors and white and requires the addition of water only.

## SABINITE 38

### DESCRIPTION

SABINITE 38 is an hydraulic acoustical plaster prepared for use in locations subjected to high moisture conditions. It is manufactured in white only, and provides a *float finish*.

SABINITE 38 is effective for sound conditioning in shower rooms, for ceilings in swimming pools, etc.

### LIMITATIONS (All Types)

1. Designed for use on ceilings and areas not exposed to rough usage.
2. To insure best results, SABINITE must be applied in strict accordance with manufacturer's directions.

(*See AIA File 39-B for complete Technical Information and Specifications*, or Sweets Section 11A-12.)

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# EXTERIOR STUCCO BASECOAT

## DESCRIPTION

Exterior stucco base coat is prepared on the job from portland cement, lime, sand and water and is the base coat that receives the ORIENTAL* Exterior (colored) Finish.

## FUNCTION AND UTILITY

Exterior stucco basecoat is used for the scratch (first coat) and brown (second coat) over cement block or clay tile, or over sheathing to which Stucco Mesh or self-furring metal lath has been properly applied.

*FIRE RESISTANT*—Made from portland cement, lime and sand, it will not support combustion.

*WEATHER RESISTANT*—Suitable for normal exposure to climatic variations.

*STRONG*—Properly mixed and cured, it provides a dense, hard base that will withstand normal wear and usage.

*ECONOMICAL*—Use of standard, readily available materials provides a low cost basecoat.

## LIMITATIONS OF USE

1. Because of the use of portland cement, each coat required curing with water after set.
2. Must not be applied in freezing weather or over bases containing frost.
3. Must not be used on smooth, dense surfaces or over old, unsound stucco unless stucco mesh reinforcement is first properly applied.

## SPECIFICATIONS

### SCOPE

Unless otherwise specified or shown on the drawings, all exterior walls shall have a portland cement-lime stucco basecoat.

(*Note to Architect: The following specification may be adapted to your requirements for interior portland cement-lime plaster.*)

### MATERIALS

*Reinforcing mesh* (where required) shall be USG Stucco Mesh applied with stucco furring nails or USG 3.4 lb. Self-Furring Diamond Mesh Metal Lath, applied with 1½" 11 gauge galvanized roofing nails. Nails to be spaced not over 6" on center vertically and 16" on center horizontally.

*PORTLAND CEMENT*—Shall comply with A.S.T.M. Designation C150-47.

*LIME*—Shall be MORTASEAL or RED TOP Masons Hydrate Lime or Quicklime as manufactured by the United States Gypsum Company.

*SAND*—Shall be clean and sharp and shall meet the requirements of American Standards Association specifications A-12-2.

*WATER*—Shall be clean, free from harmful quantities of organic matter and fit for domestic consumption.

*FINISH*—Shall be ORIENTAL Exterior (colored) Finish as manufactured by the United States Gypsum Company.

### MIXING OF BASECOATS

The scratch (first coat) shall be mixed in the proportion of one bag of portland cement (one cubic foot); two bags of MORTASEAL (or two cubic feet of RED TOP Masons Lime Putty) and seven and one-half cubic feet of sand (approximately 45 No. 2 shovels). For application over stucco mesh or self-furring metal lath, approximately two pounds of fiber or hair shall be added to each mix of the above proportions.

The brown coat (second coat) shall be mixed in the proportion of one bag of portland cement, two bags of MORTASEAL (or two cubic feet of RED TOP Masons Lime Putty) and nine cubic feet of sand (approximately 55 No. 2 shovels).

### APPLICATION

Scratch coat shall be applied in a full ⅜" coat, with sufficient pressure to form a good bond with masonry surfaces or to force it through and completely embed the stucco mesh. Cross scratch and, after set, damp cure for not less than 48 hours.

Brown coat shall be applied over the dampened scratch coat in a full ⅜" coat with sufficient pressure to form a good bond, rodded level and left rough, using a broom if necessary. After set, damp cure for at least 48 hours before applying the finish (third) coat.

### CURING

Damp curing of each coat shall be accomplished by applying water in a fine, fog spray. Apply only as much water as is readily absorbed. The frequency of spraying required will depend on the weather exposure, more frequent applications being required during hot, dry and windy weather.

# EXTERIOR STUCCO FINISH

## ORIENTAL* EXTERIOR (COLORED) FINISHES

### DESCRIPTION

ORIENTAL Exterior Finish is a factory-prepared stucco for exterior application over a portland cement-lime basecoat. It requires the addition of water only on the job.

Colors: Pewter Gray, Eggshell Ivory, Sun Tan, Stone Gray, Copper Rose, Alamo Buff, Mission Green, Cascade Green, Pueblo Tan, Indian Coral, Rancho Brown and White.

### FUNCTION AND UTILITY

*FACTORY PREPARED*—Uniformity in formulation insures endurance under all weather conditions. Avoids possibility of job-mixing errors.

*INTEGRAL COLORING*—Prevents variations possible where colors are added at site.

*DECORATION*—Requires none.

*ADAPTABLE* to any texture.

### LIMITATIONS

1. Not designed for use as a smooth trowel finish.
2. Requires a portland cement-lime basecoat.

## PLASTERING SPECIFICATIONS

### GENERAL PROVISIONS

When exterior stucco is applied during cold weather, longer curing periods are necessary. In freezing weather, do not apply ORIENTAL Exterior Stucco unless special precautions are taken to keep the materials at a temperature above 50°F. during mixing and for at least 48 hours after application.

### SCOPE

Unless otherwise shown on drawings, all exterior walls shall be finished as herein described.

### MATERIALS

Exterior finish coat shall be ORIENTAL Exterior colored finish as manufactured by the United States Gypsum Company. Color and texture to be designated and approved by the architect or his representative.

### MIXING AND APPLICATION

ORIENTAL Exterior colored finish shall be mixed and applied in strict accordance with the manufacturer's directions.



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# USG SHEATHING

## DESCRIPTION

USG* Sheathing is a fireproof gypsum sheathing material. It is made in large unit sheets 2′x8′x½″ with a new type water-resistant "asphalted" gypsum core enclosed in a specially treated, water-repellent, heavy black paper. The long edges are V-tongued and grooved.

## FUNCTION AND UTILITY

*FIREPROOF*—The gypsum core is incombustible and will not communicate high temperatures until completely calcined—a slow process.

*RESISTANCE TO WEATHER AND MOISTURE*—The gypsum in the core is thoroughly inter-mixed with asphalt type emulsion. In addition, the tough paper covering is given a special water-repellent treatment. This combination provides an amazing resistance to weather. The ability to "weather all weather" makes possible open storage on the job and exposure on the framing during construction without appreciable loss of structural value. It does not warp or buckle.

*VAPOR PERMEABILITY*—USG Sheathing has an average permeability of 27.3 grains per sq. ft. per hr. per inch of mercury vapor pressure difference.

*ADDS STRUCTURAL STRENGTH*—Wet or dry, USG Sheathing provides unusual lateral bracing to the frame. (See technical data.)

*WIND-TIGHT JOINTS*—The inter-locking V-tongue and groove joints remain snugly fitted, thus minimizing wind infiltration.

*ECONOMICAL*

a. Unit cost of material is low.
b. Full dimension—no face loss.
c. Building paper eliminated except where required by building regulations.
d. Minimum of waste—sheets fit standard 16″ or 24″ stud spacing.
e. Up to 1000 sq. ft. can be applied by one man in eight hours.

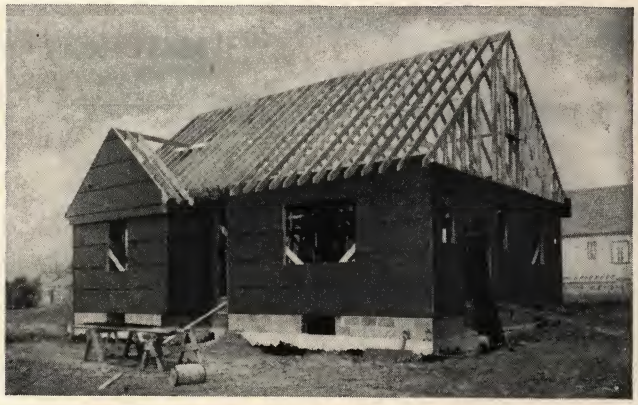
## LIMITATIONS OF USE

**1.** *Maximum Stud Spacing*

USG Sheathing is designed for use on stud centers up to 24″ for exterior finishes of wood siding, brick veneer, and stucco. For shingle exteriors the maximum stud centering is 16″.

**2.** *Attachment of Exterior Finishes*

Wood siding, mesh reinforcement, nailing strips, wall ties, etc., shall be secured to the framing members by nailing through the USG Sheathing.



**USG Sheathing being applied to wood frame house**

## TECHNICAL DATA

### 1. STRENGTH TO RESIST LATERAL DISTORTION

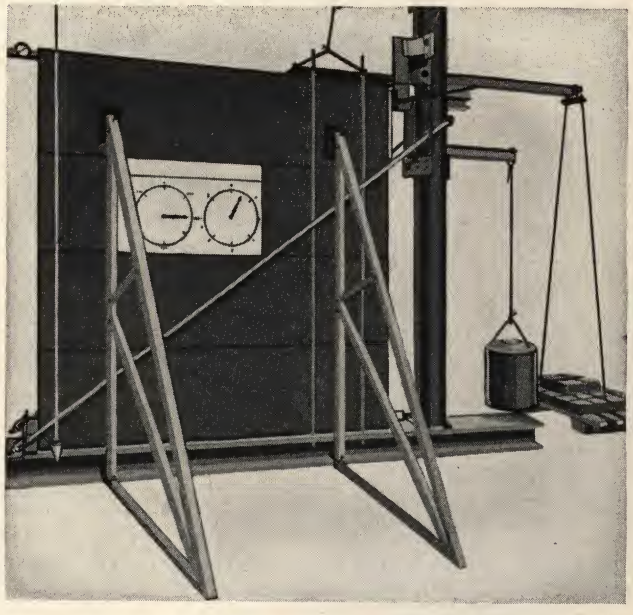
Comparative tests have been conducted in USG Research Laboratories and attested by Phil C. Huntly, Consulting Engineer. Tested dry, USG Sheathing applied to an 8′x8′ panel of 2″x4″ framing on 16″ centers had a lateral distortion of .498 inch under a racking load of 1850 lbs.

A similar panel was subjected to the equivalent of 5½ years of average United States rain-fall in a giant "weatherometer" and with the same load of 1850 lbs. the distortion was only 1.125 inches.

Under this same load a similar frame sheathed with 1″x8″ dry wood sheathing resulted in a distortion of 10.312 inches.

### 2. INSULATION

Thermal conductance is 2.86 and thermal resistance is 0.35, both for ½″ thickness.



**USG Sheathing Panel in Lateral Distortion Machine**
**Load of 1850 lbs. applied at upper right hand corner of 8′x 8′ Test Panel**
**Lateral distortion on Dry Panel—.498 inch**
**Lateral distortion on Wet Panel—1.125 inches**

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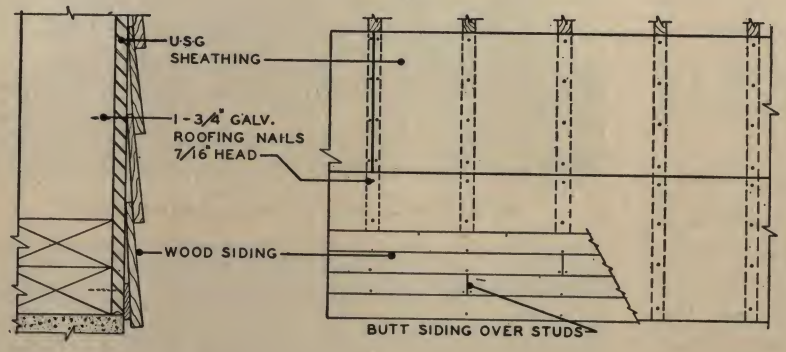
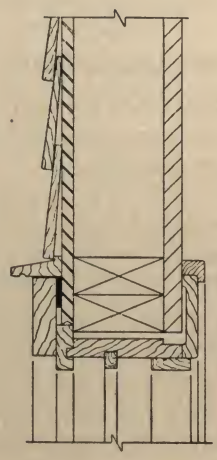
# USG SHEATHING

## WALL AND WINDOW DETAILS

SCALE: SECTIONS—1½"=1'-0" ELEVATIONS—⅜"=1'-0"

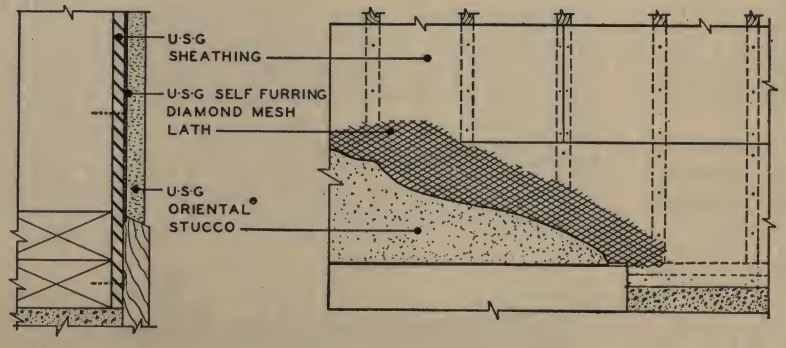
### WOOD SIDING

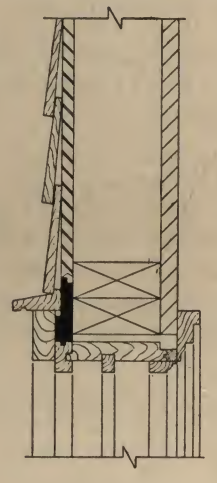


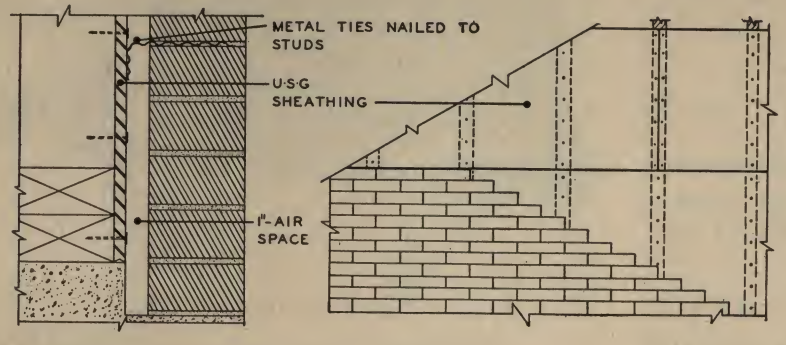
FRAMES WITH 3/4" BLIND STOPS SHALL HAVE WOOD STRIPS BETWEEN THE SHEATHING AND TRIM

### ORIENTAL STUCCO



### BRICK VENEER




FRAMES WITH THIS REVERSIBLE BLIND STOP PERMIT THE USE OF 1/2" U·S·G SHEATHING WITHOUT SPECIAL FILLERS UNDER TRIM.

IF THESE FRAMES ARE NOT LOCALLY AVAILABLE SPECIFY FRAMES FOR 1/2" USG SHEATHING.

FROM: NATIONAL DOOR MFGR'S ASSOC. MANUAL; WSS-45

# USG SHEATHING

## SPECIFICATIONS FOR USG SHEATHING

### SCOPE

Unless otherwise shown on plans, all exterior walls shall be sheathed according to these specifications.

### MATERIALS

*Sheathing* shall be USG Sheathing as manufactured by the United States Gypsum Company, ½" x 24" x 8'0". *Nails* shall be galvanized, 7/16" head diameter, 1¾" long roofing nails, having No. 11 gauge barbed shanks.

### APPLICATION

Apply USG Sheathing with the long dimension across the supports and with the groove edge down, interlocking the tongue and groove edges. Ends of sheets shall abut over centers of supports, and all end joints shall be staggered. Fit snugly around all window and door openings. Secure sheathing to studs with nails spaced approximately 4" on centers, 7 nails per 24" sheathing width per support except where exterior finish is secured to the frame with nails driven through the sheathing and into the studs, in which case nails shall be spaced approximately 8" on center 4 nails per 24" sheathing width per stud.

Starter nails shall be not less than ⅜" from edges or ends of sheathing.

### OPTIONAL INCLUSIONS

**1.** *USE OF WOOD SIDING OVER USG SHEATHING*

Apply siding directly over USG Sheathing, securing it with nails driven through sheathing and into studs. Nails shall have a minimum penetration of 1¼" into the studs. End joints of siding shall be over centers of studs.

**2.** *USE OF MASONRY VENEER OVER USG SHEATHING*

Masonry ties shall be attached with nails driven through the sheathing and into the studs, using nails of sufficient length to penetrate 1¼" into the studs. (At least 6d common nails.) Ties shall be spaced vertically to conform with coursing of masonry veneer.

**3.** *USE OF SIDE WALL SHINGLES OVER USG SHEATHING* (Wood, Slate or Asbestos-Cement).

Apply 1" x 2" wood furring strips horizontally over the USG Sheathing spaced to correspond to the shingle exposure. Secure strips with nails driven through sheathing. Use nails of sufficient length to provide at least 1¼" penetration into studs (at least 8d common). Use at least one nail at each intersection of stud and furring.

### NOTE TO ARCHITECT

**1.** *Use of Stucco over USG Sheathing*—Stucco may be applied over USG Sheathing either by the use of furring strips and expanded metal lath or by the use of self-furring 3.4 lb. USG Diamond mesh lath nailed through sheathing and into studs with large headed nails of sufficient length to provide at least 1¼" penetration into studs. See Sweet's catalog or AIA file 20-B-1.

**2.** *Federal and A. S. T. M. Specifications*

USG Sheathing complies with Federal specifications for Gypsum Sheathing Board. SS-S-276 and A.S.T.M. (American Society for Testing Materials) Standard Specifications, A.S.T.M. Designation: C79-42. These specifications require only plain core, plain paper. USG Sheathing exceeds these with water repellent gypsum core and water repellent paper.

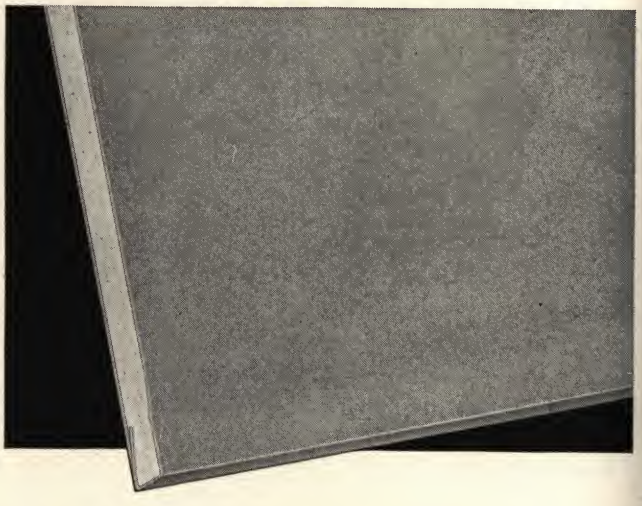
# SHEETROCK*

## ONE-HALF INCH RECESSED EDGE WALLBOARD

### DESCRIPTION

½" SHEETROCK is composed essentially of a gypsum core encased in tough paper; a heavy manila finished sheet on the face side and a strong liner paper on the back side. The long edges are recessed (thinner edges) to form a shallow channel for embedding and concealing the joint reinforcement—PERF-A-TAPE*—when 2 panels are butted. For sizes see Technical Data for SHEETROCK. (Page 4).

*PERF-A-TAPE JOINT SYSTEM*—consists of a strong paper tape and cement. Both products engineered for SHEETROCK joint reinforcement and concealment. The tape is made of a special, perforated, strong paper with its edges chamfered. The cement is designed for low shrinkage, maximum bond and workability.



### FUNCTION AND UTILITY

½" Recessed Edge SHEETROCK wallboard provides the following features:

*FIREPROOF.* SHEETROCK will not burn or support combustion. It will not transmit temperatures greatly in excess of 212° F. until completely calcined—a slow process.

*STRONG FLUSH JOINTS.* PERF-A-TAPE provides a system for reinforcing SHEETROCK joints. The strength of the finished PERF-A-TAPE joint is as great as that of the board itself. The joinings between the SHEETROCK panels are concealed with a specially processed fiber tape bonded to the board with a cement of unusual strength and adhesiveness.

*DECORATION.* The face paper on SHEETROCK is a strong sheet with a highly calendered manila surface which is suitable for any type of decorative treatment, such as paint, texture, wallpaper, and permits repeated re-decoration during the life of the building.

*CRACK-RESISTANT.* "Welded" together by the PERF-A-TAPE Joint System, SHEETROCK panels form walls and ceilings that are extremely resistant to cracks caused by frame movement, vibration or settlement.

*NON-WARPING.* Expansion or contraction of SHEETROCK under normal atmospheric changes is negligible, consequently it will not warp or buckle.

*DRY WALLS.* Eliminates needless water in construction. Saves on cost of temporary heat in cold weather construction.

*SPEED.* Precast panels of SHEETROCK are easily cut and quickly applied.

*HORIZONTAL WALL APPLICATION.* (The horizontal application of SHEETROCK is applying the long length of the SHEETROCK panel at right angles to the framing members.) The strength of SHEETROCK and the joint system is such that panels may be erected horizontally on walls without the need of headers behind the horizontal joints. This method generally reduces the total lineal footage of joints, produces more inconspicuous joints, gives greater bracing strength and is the recommended application method.

### LIMITATIONS OF USE

**1.** *Maximum Spacing of Framing Members.* ½" Recessed Edge SHEETROCK is designed for use on framing centers up to 24".

**2.** *Shower Stalls.* SHEETROCK should not be used in damp locations, as in shower stalls.

## ⅜" SHEETROCK WALLBOARD

⅜"SHEETROCK wallboard is identical to ½"SHEETROCK in all physical respects except thickness. It is the standard gypsum wallboard for repair and remodel. It is likewise used in some new homes.

All the features listed under "Function and Utility of ½" SHEETROCK" are essentially the same for this product.

⅜" SHEETROCK is manufactured with three edges as follows:

*Recessed Edge.* For use with PERF-A-TAPE where joint reinforcement and concealment is necessary.

*Beveled Edge* SHEETROCK has a ⅛" to 3/16" bevel on the long edges. It may be used where the joint is to be featured.

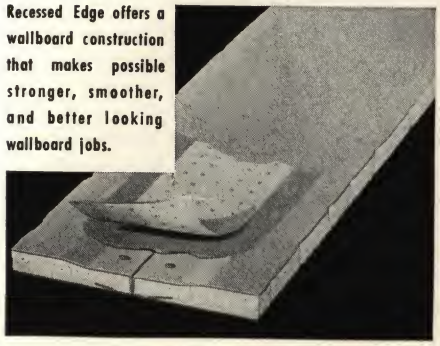
*Square Edge* SHEETROCK is manufactured for use with batten strips or other decorative joint treatment. Its primary use is for temporary or industrial construction.



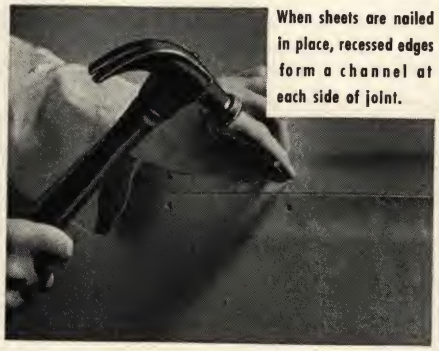
**Trademarks Reg. U. S. Pat. Off.*

# APPLICATION OF SHEETROCK

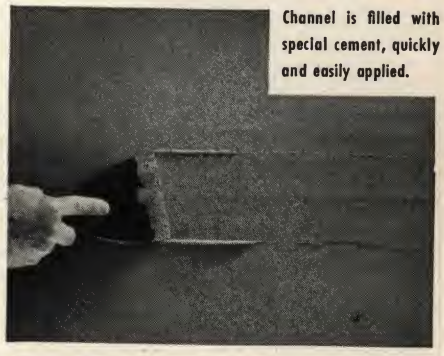
## PERF-A-TAPE JOINT SYSTEM FOR SHEETROCK WALLBOARD



Recessed Edge offers a wallboard construction that makes possible stronger, smoother, and better looking wallboard jobs.



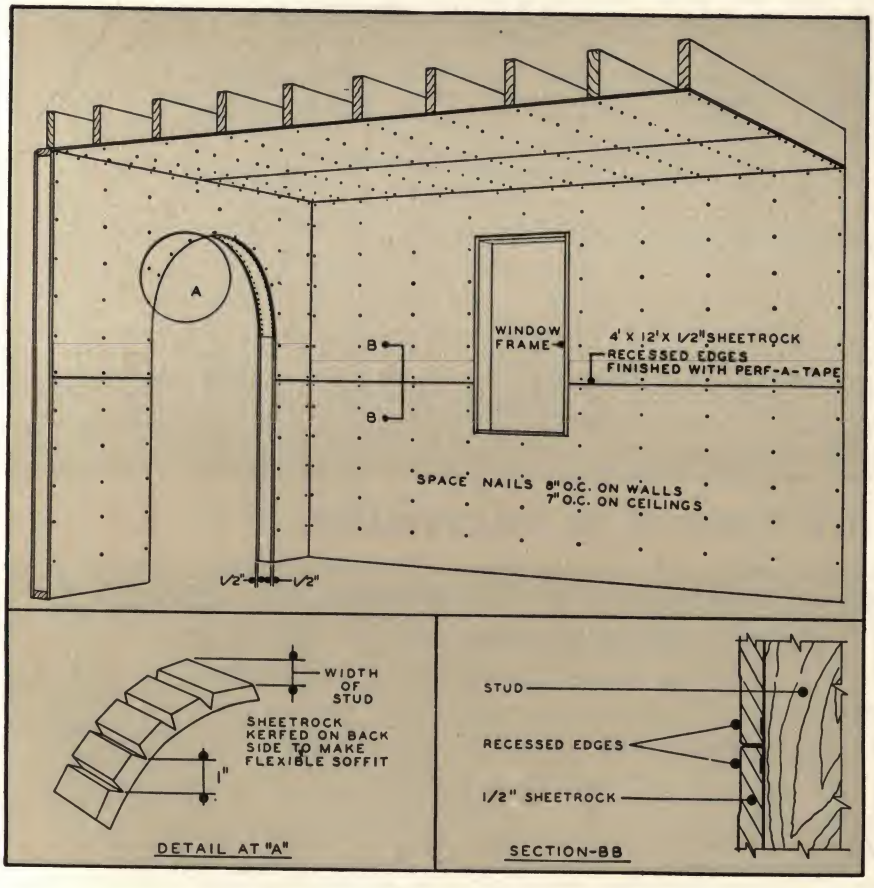
When sheets are nailed in place, recessed edges form a channel at each side of joint.



Channel is filled with special cement, quickly and easily applied.

## ERECTION

### ½" RECESSED EDGE SHEETROCK WALLBOARD





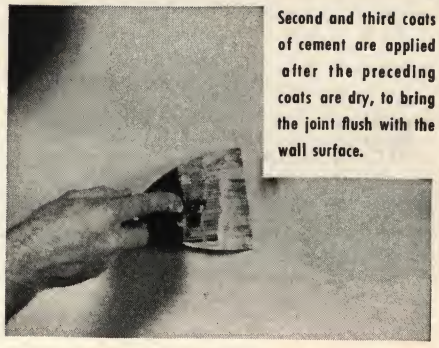


DETAIL AT "A"

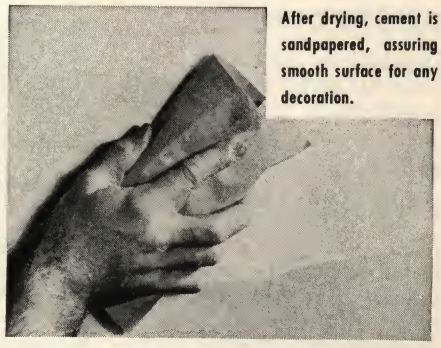



SECTION-BB

PERF-A-TAPE is embedded in the cement. A thin covering coat of cement is applied immediately after this operation.



Second and third coats of cement are applied after the preceding coats are dry, to bring the joint flush with the wall surface.



After drying, cement is sandpapered, assuring smooth surface for any decoration.

## ADVANTAGES OF HORIZONTAL APPLICATION OVER NORMAL VERTICAL APPLICATION

We recommend horizontal application on walls and ceilings for the following reasons:

**1.** Reduces necessary joint treatment footage up to 25 per cent.

**2.** Strongest dimension of board runs across framing members.

**3.** Bridges irregularities in alignment and spacing of framing members.

**4.** Eliminates need for headers.

**5.** Better bracing continuity—ties more framing members together.

**6.** Joints are at convenient height on walls for the finishing operation.

# TECHNICAL DATA FOR SHEETROCK

## Fire Endurance Ratings of Gypsum Wallboard Partitions*

| Material | Fill between studs | Fire Endurance Period | |
|---|---|---|---|
| | | Bearing | Non-bearing |
| ½" Gypsum Wallboard | None | 40 Min. | 40 Min. |
| ⅜" Gypsum Wallboard | None | 25 Min. | 25 Min. |
| ¼" Gypsum Wallboard | No Tests | .. | .. |

NOTE: Ratings are for partitions constructed of 2" x 4" studs (16" o.c.), with Gypsum Wallboard nailed on both sides of studs.
*As published in National Bureau of Standards Publication BMS 92

## BENDING RADII

| THICKNESS | LENGTHWISE | WIDTH |
|---|---|---|
| ½" | 20'* | .. |
| ⅜" | 7½' | 25' |
| ¼" | 5' | 15' |

*Bending two ¼" pieces successively permits radii shown for ¼" SHEETROCK.

Notes:

1. To apply board, place a stop at one end of the curve and then gently and gradually push on the other end of the board, forcing the center against the framing until the curve is complete.
2. By moistening the face and back paper thoroughly and allowing the water to soak well into the core, the board may be bent to still shorter radii. When the board dries thoroughly, it will regain its original hardness.

## NORMAL STOCK SIZES AND SPECIFICATIONS

| Thickness | Edge | Width | Length | Approx. Weight Lbs. per M Sq. Ft. | Recommended Support Spacing | Joint Treatment | Size Nail Used | Nails Lbs. M Sq. Ft. | Maximum Nail Spacing | Decoration |
|---|---|---|---|---|---|---|---|---|---|---|
| ½" | Recessed | 4' | 6, 7, 8, 9, 10 & 12 | 2100 | 16" or 24" o.c. | PERF-A-TAPE | 5d Cement Coated | 6 | 8" on Walls 7" on Ceilings | Paint or Wallpaper |
| ⅜" | Recessed | 4' | 6, 7, 8, 9, 10 & 12 | 1550 | 16" o.c. | PERF-A-TAPE | 4d Cement Coated | 4½ | Same as above | Paint or Wallpaper |
| ⅜" | Beveled | 4' | 8, 10 & 12' | 1550 | 16" o.c. | No treatment required | 4d Cement Coated | 4½ | Same as above | Paint |
| ¼" | Square | 4' | 7, 8, 9 & 10' | 1100 | 16" o.c. | SHEETROCK Finisher, PERF-A-TAPE, or Panel Strips | 4d Cement Coated, 6d over existing plaster | 4d-4½ 6d-6 | Same as above | Paint or Wallpaper |

NOTE: *Insulating SHEETROCK*—Any of the above are available with insulating foil back in sizes given, at slight additional cost.

## INSULATING SHEETROCK WALLBOARD

### DESCRIPTION

Insulating SHEETROCK is regular SHEETROCK wallboard which has a sheet of bright aluminum foil securely attached to its back surface.

### FUNCTION AND UTILITY

*INSULATION.* The bright metal foil has the property of reducing heat flow out of the home in the winter and into the home in the summer. The thermal insulating value of Insulating SHEETROCK properly applied in a wall is equivalent to that of ½" fiber insulating board.

*VAPOR BARRIER.* Insulating SHEETROCK provides an efficient vapor barrier which retards the passage of vapor through the interior lining of exterior walls, minimizing the possibility of condensation within the wall. For explanation of the effect of vapor barriers on condensation, see page 5.

All items describing the function and utility of ½" Recessed Edge SHEETROCK also apply to this product.

### THERMAL RESISTANCE (R) OF INSULATING SHEETROCK FACING AN AIR SPACE OF ¾" OR MORE

**All figures based on 1947 Guide of the ASHVE**

| DIRECTION OF HEAT FLOW | Thickness of Insulating Sheetrock | | |
|---|---|---|---|
| | ½ inch | ⅜ inch | ¼ inch |
| **DOWNWARD** Use these coefficients for ceilings and sloping surfaces under summer conditions | 6.87 | 6.78 | 6.69 |
| **UPWARD** Use these coefficients for ceilings and sloping surfaces under winter conditions | 2.53 | 2.44 | 2.35 |
| **HORIZONTAL** Use these coefficients for walls under both summer and winter conditions | 2.53 | 2.44 | 2.35 |

# SPECIFICATIONS FOR ½" RECESSED EDGE SHEETROCK

## SCOPE

Unless otherwise shown on plans, all interior walls and ceilings shall be finished with gypsum wallboard.

## MATERIALS

*Gypsum Wallboard* shall be ½" Recessed Edge SHEETROCK, manufactured by the United States Gypsum Company.

*Nails* shall be 5d, 13½ gauge, cement-coated, flathead.

## ERECTION

Framing shall be in accordance with plans and specifications *and/or shall pass minimum F.H.A. requirements.* Headers shall be provided for solid support for fixture attachment wherever necessary.

SHEETROCK panels in lengths as long as possible shall be applied to ceilings first and then walls. All panels shall be applied with the long edges at right angles to the framing members. All ends shall be supported on framing members and joints shall be staggered. Joints on opposite sides of partitions shall not fall on the same stud.

Recessed edges shall be butted loosely together. Cut edges and mill ends shall be sanded down to provide a smooth joining.

SHEETROCK wallboard shall be securely nailed to supports, using 5d, 13½ gauge, cement-coated, flathead nails, 1⅝" long. Nails shall be spaced not less than ⅜" from edges and ends of board and shall be spaced 5" to 7" apart on ceilings and 6" to 8" apart on walls. Nails shall be driven "home," with heads slightly below the surface. Do not use a nail set.

# SPECIFICATIONS FOR PERF-A-TAPE JOINT SYSTEM

## MATERIAL

Joint treatment shall be PERF-A-TAPE joint reinforcing tape and cement, manufactured by United States Gypsum Company.

## APPLICATION

Cement included in PERF-A-TAPE Joint System shall be mixed according to the manufacturer's directions.

All internal and external corners and angles shall be reinforced with PERF-A-TAPE Joint System and finished in the following manner:

The recess between two SHEETROCK panels shall be filled with a sufficient thickness of cement to completely hide the board at all points. The tape shall be centered on the joint and, with a SHEETROCK knife or suitable tool, pressed tightly to the two panels. The excess cement, squeezed from between the tape and panels, shall be laid smoothly on top of the tape.

When the first coat is thoroughly dry, a second application of cement shall be spread evenly over the entire joint to beyond the shoulder of the recess.

When the second coat is thoroughly dry, the third and finish coat shall be applied so as to even up all surfaces of the joint.

All nail depressions shall receive at least two coats of cement, leaving them filled even and flush with the surface of the board.

Between applications of cement, rough spots or areas shall be sanded smooth wherever necessary. When thoroughly dry, the finish coat shall be sanded wherever necessary to leave all joints and nail spots flush and smooth and ready for decoration.

# WOODGRAINED SHEETROCK

## DESCRIPTION

Woodgrained SHEETROCK is a pre-finished gypsum wallboard combining the appearance of wood with the fireproof and other advantages of gypsum. The appearance of graining, knots and coloring characteristics of bleached mahogany, knotty pine and walnut are faithfully reproduced on the face of SHEETROCK by photographic and printing processes. A factory-applied lacquer helps protect and preserve the finish. It is made in 3/8" thickness and 4' widths—8' and 10' lengths. Nails are available in matching colors.

## FUNCTION AND UTILITY

Woodgrained SHEETROCK wallboard is recommended for use in libraries, dens, hallways, finished attic and basement rooms, shops, offices, restaurants, clubs, display rooms, etc., where a wood paneled effect is desired. It provides the following features:

*ATTRACTIVE WOOD PANEL EFFECT*—SHEETROCK Woodgrained finishes in bleached mahogany, knotty pine and walnut reproduce in minute detail the appearances of color, graining, knots, burling and individuality of real wood panels.

*FIREPROOF*—Woodgrained SHEETROCK has the appearance of wood but will not burn because of its fireproof gypsum core. It adds fire protection to the building.

*DOES NOT WARP OR BUCKLE*—Woodgrained SHEETROCK has all the durability and non-warping qualities of regular SHEETROCK. This advantage is important in woodgrained finishes. It means that panels will not pull out from under mouldings and that they will maintain the straight, even surface which they have when first erected.

*EASY TO CUT*—SHEETROCK in woodgrained finishes is easily cut with a saw, or it may be scored and snapped.

*LOW IN COST:*

(a) Unit cost of material is low.

(b) Large unit sheets are easily and quickly erected.

(c) Colored nails eliminate nailhead treatment.

(d) Surface and decoration in one operation—saves decorating cost—eliminates joint treatment—saves time.

*NO PANEL STRIPS OR JOINT TREATMENT REQUIRED*—The fine line joint obtained by butting *square edge* knotty pine Woodgrained SHEETROCK panels together looks like a continuation of the random width plank field pattern. Bleached mahogany and walnut Woodgrained SHEETROCK have *beveled edges* which

make butted "V" joints a part of the decoration instead of something to be hidden. Picture mouldings, cove mouldings, chair rails, plate rails, and base assemblies may be of a wide variety commonly used. Mouldings may be stained to harmonize or contrast with Woodgrained SHEETROCK.

*Maintenance*—Woodgrained SHEETROCK is protected by its factory applied lacquer finish. It is easy to clean.

If additional protection is desired or needed, a deluxe finish may be secured by first applying a coat of white shellac, then a coat of wax for a dull finish or a coat of clear varnish for glossy finish.

*Caution:* Do not apply varnish without first using shellac.

## LIMITATIONS OF USE

1. *Maximum framing centering.* Woodgrained SHEETROCK is not recommended for use on framing centers over 16".

2. *Excessive wear and cleaning.* Where excessive wear is expected, panels should be treated with a coat of white shellac, then waxed or varnished. Where tables or chairs frequently touch a wall, a wood chair rail should be provided.

## TECHNICAL DATA FOR WOODGRAINED SHEETROCK

Same as for 3/8" SHEETROCK wallboard.

# TYPICAL INSTALLATIONS—WOODGRAINED SHEETROCK

# SPECIFICATIONS FOR WOODGRAINED SHEETROCK

## SCOPE

Where indicated on plans, interior walls shall be finished with pre-decorated gypsum wallboard.

## MATERIALS

*Pre-decorated gypsum wallboard*—shall be ⅜″ Woodgrained SHEETROCK, manufactured by United States Gypsum Company. Type of grain shall be as shown in plans.

*Nails*—shall be of matching color.

*As an alternate, Woodgrained SHEETROCK can be securely nailed with 5d finish nails driven at 45° angle, countersunk and puttied with Spackling Putty or plastic wood, colored to match finish on SHEETROCK.*

## ERECTION

Supports such as studs, joists, or furring strips shall be spaced 16″ on center and shall be level and plumb. All joints or edges shall be supported by framework or headers. Butt edges together, placing joints to get balanced panel effect, or as shown in plans. Space nails 6″ to 8″ o.c. Use padded or plastic head hammer to drive colored nails.

*Wax or varnish finish.* The Woodgrained SHEETROCK shall be given a *coat of white shellac*, then a coat of (wax) (varnish). Specify brand.

# SHEETROCK TILEBOARD

## DESCRIPTION

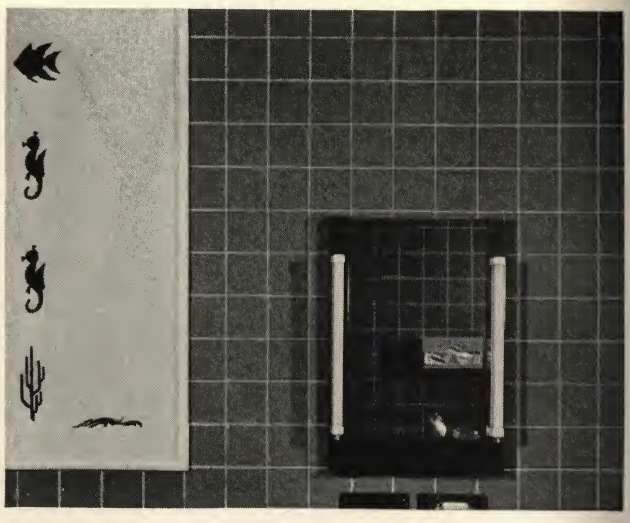
SHEETROCK Tileboard is a gypsum wallboard having a surface indented with tile-like impressions 4¼″ x 4¼″ square. When decorated, it simulates tile. It is made in standard ⅜″ thickness and 4′ widths—8′ and 10′ lengths.

## FUNCTION AND UTILITY

SHEETROCK Tileboard is used in bathrooms, kitchens, lavatories, dairy buildings, restaurants and any place where a tile design is wanted. SHEETROCK Tileboard provides the following features:

*ECONOMICAL* SHEETROCK Tileboard, low in cost, with its close simulation of ceramic tiling and inherent speed of erection, permits faster completion of any room where a tile effect is desired.

*EASILY DECORATED.* It can be decorated with gloss oil paint or enamel. When a solid color is used for "tiles" and a lighter color for joints, the appearance of ceramic tile is more nearly produced.



## SPECIFICATIONS FOR SHEETROCK TILEBOARD

### SCOPE

Where indicated on plans, interior walls (describe area) shall be finished with gypsum tileboard. (*Not recommended for shower walls.*)

### MATERIALS

Gypsum tileboard shall be ⅜″ SHEETROCK Tileboard, manufactured by United States Gypsum Company.

*Nails* shall be 4d cement coated flathead.

### ERECTION

Studs shall be spaced 16″ on centers and shall be level and plumb. Headers shall be provided wherever fixtures are to be installed. Tileboard shall be of sufficient length to span wall lengths (up to 10 feet). When end joints cannot be avoided, place them over and under openings. Cut back as near the center of the tile squares as possible and make an even match. Leave a space of at least ¼″ between tileboard and tub rim. Set bottom edge of sheet in a good grade of waterproof caulking compound and fill ¼″ space completely. Nail tileboard in "field" of tile with 4d cement coated nails. Drive nails home and fill hammer depressions with SHEETROCK Finisher. Joints and corner angles shall be treated with PERF-A-TAPE Joint System with cement grooved to match tile impressions.

# QUARTER-INCH SHEETROCK WALLBOARD

## DESCRIPTION

Quarter-inch SHEETROCK is a utility gypsum wallboard. It is made with square edges only, 4′ wide—7′, 8′, 9′, and 10′ long. Its highly calendered ivory colored surface takes any type of decoration.

## FUNCTION AND UTILITY

Quarter-inch SHEETROCK is ideal for covering old unsightly walls and ceilings, in repair work, and for temporary or "cost factor" walls, ceilings and partitions in stores, offices, factories, etc.

*FIREPROOF AND DURABLE.* Quarter-inch SHEETROCK, with its gypsum core, has all the fireproof, non-warping, and decorative features of SHEETROCK.

*LIGHT WEIGHT.* Its light weight makes it easy to handle and apply on ceilings.

*CURVED SURFACES.* Quarter-inch SHEETROCK is more flexible than thicker SHEETROCK and can be safely bent to a 5′ radius lengthwise. This makes quarter-inch ideal for curved surfaces and display work.

*LOW IN COST.* Unit cost is lower than most other types of wallboard and is in the same price range as paper wallboard.

*TAKES ANY JOINT TREATMENT.* Joints may be reinforced with PERF-A-TAPE, treated with panel strips or simply filled with SHEETROCK Finisher.

*TAKES ANY DECORATION.* Its ivory colored surface provides an ideal surface for paint, wallpaper or textured decorations.

*IDEAL FOR COVERING OLD WALLS AND CEILINGS.* Quarter-inch can generally be applied directly over old walls without removing wood trim. PERF-A-TAPE Joint Treatment provides smooth "joint-free" walls.

## LIMITATIONS OF USE

1. *Maximum stud spacing.* Quarter-inch SHEETROCK is designed for use on stud centers up to 16″.

2. *New construction.* Not designed for use in normal new construction. One-half inch SHEETROCK is recommended.

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